

AUSTRALIAN HYMENOPTERA CHALCIDOIDEA—XII.*

The Family Callimomidæ with Descriptions of New Genera and Species.

BY A. A. GIRAULT.

SUBFAMILY CALLIMOMINAE.

GENUS *TORYMUS* Dalman.

1. *TORYMUS EUCALYPTI* Ashmead. Female; male.

Length, 2.8 to 3 mm.; ovipositor as long as the body. Gold green with cupreous reflections; head in front and mesopleura blue-green; mandibles rufous; palpi white; antennæ brown-black, scape and pedicel æneous; tegulæ and legs except coxæ and the hind femora which are metallic green, pale yellowish, tibial spurs and tarsi white; wings hyaline, stigmal and marginal veins brown.

Head shagreened and punctate, ocelli red; thorax above transversely wrinkled or striate, with some sparse punctures scattered over its surface; metathorax smooth, with some short lineations at extreme base just back of scutellum; mesopleura smooth, impunctate except some delicate lines on anterior margin; hind coxæ large, coarsely reticulated.

The male measures from 2 to 2.25 mm. and agrees well with the female except in the usual sexual differences, and in having sometimes a brownish or metallic band on the anterior and middle femora, the extreme base of the scape being yellowish, while the flagellum is stouter, with the joints a little wider than long.

Habitat: Sydney, New South Wales. From a soft red gall on *Eucalyptus*.

Type: No. 4877, United States National Museum, Washington, D.C., U.S.A.

GENUS *CALLIMOME* Thomson.

1. *CALLIMOME ACACIÆ* Cameron.

“ Green; thorax tinged with blue, face and malar space tinged with golden, antennal scape green, flagellum black; trochanters, base and apex of femora narrowly and tibiæ and tarsi yellow, almost white; wings hyaline, nervures black.

♂ ♀. Length, 2 mm.; terebra 1.5 mm.

Erina, N.S.W., bred from small berry-like galls on the foliage of *Acacia* sp.; 28 August (W. W. Froggatt).

Face strongly punctured, more weakly above than below, and more sparsely in the middle above; a keel runs down its middle from the antennæ, it becoming widened below. Vertex and front sparsely punctured, their sides transversely striated, the latter more strongly than the former; the space below the ocelli aciculated only. Mesonotum finely, closely transversely striated. Base of scutellum transversely, the sides finely and closely longi-

* Contribution No. 35, Entomological Laboratory, Bureau of Sugar Experiment Stations, Bundaberg, Queensland.

tudinally striated, the apex in the middle more finely transversely striated. Base of metanotum with a crenulated furrow, centre almost smooth, sides with some oblique striæ. The top of propleuræ with a few oblique stout striæ running from the base to the apex, the rest more finely and closely striated, the striæ more or less curved. Metapleuræ smooth, the lower half depressed, rounded above, the sides margined. Abdomen smooth above, the sides finely, closely, obliquely striated. Legs closely covered with white pubescence; hinder coxæ closely, finely reticulated; hinder femora finely punctured."

2. CALLIMOME GRAMINIS Cameron.

"Green with blue and brassy tints, flagellum of antennæ black; the four anterior knees, tibiæ and tarsi and the base and apex of hind tibiæ and hind tarsi, pale straw-yellow; palpi of a paler yellow; wings hyaline, their apex ciliated, nervures black.

♂. Length, nearly 2 mm.

Boggabri, N.S.W.; in January; bred from seeds of the grass *Panicum* sp. (W. W. Froggatt).

Flagellum of antennæ fuscous on the apex and under side closely covered with a microscopic pile; its second joint twice longer than wide, clearly longer than the third. Head minutely punctured and with scattered punctures. Middle lobe of mesonotum closely, distinctly punctured and with some indications of minute striæ; parapsidal furrows distinctly curved; the lateral lobes almost smooth, the puncturation much finer than it is on the middle lobe. Scutellum finely, closely regularly punctured, more so than the mesonotum. Central part of metanotum finely, closely punctured, somewhat more strongly so than the scutellum; the sides are smooth and are bounded by a distinct, clearly defined, oblique furrow, which makes the sides triangular. Upper part of mesopleuræ smooth, this smooth part forming an irregular curve; the centre is depressed, closely finely striated; this striated part is roundly curved above; below bounded by an oblique straight margin. In the wings the stigmal vein is of the same length as the postmarginal, while with some, at least, of the European species, it is shorter. I do not know that any of the species of *Callimome*, like some, at least, of *Megastigmus*, have been shown to be phytophagous. (See my paper in "The Entomologist," April, 1910, pp. 114-115.) The present species fits in better with *Callimome* than with *Torymus*, but I am unable to examine the mandibles properly."

3. CALLIMOME RETICULATUS Cameron.

"Green, abdomen largely tipped with blue, probably almost entirely so in some specimens, antennal scape and pedicel green, flagellum bronzy brown, covered with a microscopic pile. Head aciculated, sparsely punctured. Mesonotum finely, closely reticulated, the lateral lobes more finely and closely than the central; the furrows distinct, curved, not very deep; a shallow furrow down the middle of the basal half. Scutellum more finely and closely reticulated than the mesonotum, its apex broadly rounded. Center of metanotum finely, closely reticulated, the sides smooth. Pleuræ smooth, apex of mesopleuræ with a steep slope, which forms almost a furrow. Legs dark green, tinged with blue, apex of femora and tibiæ and the greater part of the tarsi yellow. Wings hyaline, nervures black, postmarginal branch distinctly longer than the stigmal, the knob of the latter with the apex broadly rounded, the base triangular.

♂. Length, 2 mm.

Boggabri, N.S.W.; in January; bred from seeds of *Panicum*.

This species was gummied on the same card with *C. graminis*, both species represented by males only. They are, I consider, good species; *C. reticulatus* should be known by the closely reticulated mesonotum of which the lateral lobes are not smooth, as in *C. graminis*, but reticulated; the mesopleural furrow is narrower and more clearly defined; *C. graminis* has no furrow on the center of the mesonotum. Its abdomen is longer, compared with the thorax; and the flagellum of the antennæ has a more distinctly metallic tinge."

SUBFAMILY MONODONTOMERINÆ.

GENUS DIMEROMICRUS Crawford.

1. DIMEROMICRUS AUSTRALIENSIS Girault. Female.

Length, 2 mm., excluding ovipositor which is longer than the abdomen.

Brilliant shining metallic aneous green with a bluish tinge, the legs concolorous excepting the knees, tibiæ and tarsi, which are lemon yellow. Antennæ and valves of ovipositor black; wings hyaline. Scape metallic; club verging to brown. First funicle joint variable, usually smallest, all shorter than the pedicel. Second ring-joint largest. Sculpture as in type species. Mandibles tridentate.

Habitat: Lawson and Forest Reefs, New South Wales.

Type: I. 1291, South Australian Museum, Adelaide.

2. DIMEROMICRUS BREVIVENTRIS Girault. Female.

Length, 1.25 mm.

Like *australiensis* but the tibiæ also concolorous, the ovipositor somewhat shorter, subequal to the abdomen in length; also the first funicle joint is subequal to the others, all subtransverse. Hind femur beneath excised at apex the excision forming a false tooth or small obtuse triangular piece at its proximal edge (not an isolated or true tooth). Thorax reticulately scaly. Propodeum with a median carina, together with the abdomen reticulated. Scutellum with a trace of a transverse suture at extreme apex at meson but this appears to be due to pressure, the specimens have been in balsam on a slide. Otherwise agreeing with *australiensis*.

Habitat: Brisbane, Queensland. Forest, April 16, 1913 (H. Hacker).

Type: No. Hy 3292, Queensland Museum, Brisbane, the female on a tag and a slide bearing the appendages.

GENUS AMONODONTOMERUS Girault.

Agreeing with *Monodontomerus* Westwood but the abdomen petiolate, the eyes naked, the posterior femora simple, not swollen nor with teeth. Scutellum with a cross-furrow; ovipositor not half the length of the abdomen; abdominal segments with their posterior margins straight. Antennæ 12-jointed with one long ring-joint, the club stout, 4-jointed. Stigmal vein with a distinct neck, the postmarginal vein longer than the marginal. Antennæ short and clavate, the funicle joints transverse.

1. AMONODONTOMERUS VIRIDIS Girault. Female. Genotype.

Length, 2.50 mm.

Brilliant metallic green, the antennæ, the ovipositor and the legs (excepting coxæ) reddish brown, the middle of the posterior femora sometimes metallic greenish; valves of ovipositor black. Wings hyaline; the venation dusky. Head and thorax finely transversely lined and with scattered pin-punctures, the latter arranged in about two transverse lines on the pronotum. Abdomen smooth and shining but also with the punctures across the cephalic portions of the segments. Petiole roughened. Club sunken and obliquely truncate along one side. The measurement is exclusive of the ovipositor.

Habitat: Port Lincoln, South Australia.

Type: No. I. 1291, South Australian Museum, Adelaide.

GENUS MACRODONTOMERUS Girault.

Like *Plesiostigmodes* Ashmead but the pronotum normal, not by far as long as the mesonotum; scutellum without a cross-furrow; abdomen produced ventrad at middle, triangular from lateral aspect. Otherwise the same.

1. MACRODONTOMERUS TRIANGULARIS Girault. Female. Genotype.

Length, 2.40 mm., exclusive of ovipositor which is somewhat shorter than the body.

Brilliant metallic æneous green, the knees, tibiæ and tarsi straw-yellow, the rest of the legs concolorous. Wings hyaline, the stigmal vein very short, only half the length of the short postmarginal. Cephalic femora short, swollen, the posterior femora slightly enlarged and with a small tooth beneath before apex (also a slight indication of a second one farther proximad) and very minutely subserrulate. Antennæ with two ring-joints, the first funicle joint longest, slightly longer than wide, shorter than the pedicel; antennæ black. Thorax finely transversely lined and scaly.

Habitat: Mittagong, New South Wales.

Type: No. I. 1335, South Australian Museum, Adelaide.

2. MACRODONTOMERUS JUSTITIA new species. Female.

Length, 2 mm., excluding the exerted valves of the ovipositor which are somewhat longer than the globular abdomen.

Bright metallic green, the wings hyaline, the legs and antennæ pale straw yellow; hind coxæ concolorous. Abdomen pale straw, crossed above by two or three widely separated dusky stripes. Mandibles tridentate, the antennæ 13-jointed with two ring-joints, the first two funicle joints equal, longest, a little wider than long, the following joints shortening gradually, the pedicel somewhat longer than the first funicle joint. Hind tibial spurs double. Scutellum simple; propodeum with an obscure pair of short median carinæ. Head and all of the thorax finely scaly and transversely lineolated, the propodeum slightly smoother.

Habitat: Gordonvale (Cairns), Queensland. From galls on forest trees, December 12, 1912 (A. P. Dodd).

Type: No. Hy 3293, Queensland Museum, Brisbane, the female on a tag, the appendages on a slide.

3. MACRODONTOMERUS UNIMACULATUS Girault. Female.

Length, 2.43 mm., excluding ovipositor which is a little longer than the abdomen.

Dark metallic coppery green, the abdomen brown, black above, the ovipositor valves black, the scape and pedicel brown, rest of antenna black. Second segment of abdomen incised at meson of caudal margin. Legs yellowish including the coxa. Fore wings with a large, conspicuous, ovate, brownish spot in the middle, its long axis oblique, its blunter end just caudad of the stigmal vein. Head and thorax densely punctate, the propodeum smooth except along cephalic margin, brilliant coppery and with a median carina.

All funicle joints longer than wide, the first longest, subequal to the pedicel, the sixth a third shorter, only slightly longer than wide. Mandibles tridentate.

Habitat: Ingham, Queensland. February 16, 1913.

Type: No. Hy 3294, Queensland Museum, Brisbane, the female on a tag and a slide bearing the appendages.

4. MACRODONTOMERUS ATRICORNIS new species.

Female:—Length, 2.50 mm., excluding ovipositor.

Agrees with *triangularis* but the exerted portion of the ovipositor is only slightly longer than the abdomen, about half the length of the body and the first funicle joint though only somewhat longer than wide is as long as or somewhat longer than the short pedicel. The yellow portions of the legs are lemon yellow. Mandibles tridentate. Hind margin of second segment of abdomen with an acute notch at meson. Propodeum with a thin median carina, sculptured like the rest of the thorax or nearly but the scutum, scutellum, axillæ and parapsides bear many scattered thinible punctures.

Male:—The same but the ring-joints somewhat shorter, the abdomen depressed.

Described from two pairs of each sex on a card labelled "5. Galls on Wattle. Govt. Domain, Melb., Nov. '08. Emerged Feb. '09."

Habitat: Melbourne, Victoria.

Types: In the National Museum, Melbourne, the above specimens and a slide with male and female head and female antennæ and fore and hind legs.

5. *MACRODONTOMERUS IOLE* new species. Female.

Length, 1.35 mm., excluding the ovipositor which is about a third shorter than the abdomen.

Metallic æneous green, the abdomen coppery, the wings hyaline, the legs pale but with a yellowish tinge (hind coxæ concolorous with body, the others more or less so); venation lemon yellow, also the antennæ of which the pedicel is longer than the first funicle joint. Thorax transversely finely lined, the propodeum with a median carina and fine reticulation. Postmarginal vein a little longer than the stigmal which is not sessile. Mandibles tridentate.

Habitat: Gordonvale (Cairns), Queensland. Forest, October 24, 1911.

Type: No. *Hy 3295*, Queensland Museum, Brisbane, the female on a tag, the head and hind legs on a slide.

6. *MACRODONTOMERUS CINCTIVENTRIS* new species.

Female:—Length, 1.60 mm., exclusive of ovipositor which is extruded for a length equal to that of the abdomen.

Dark metallic purple, the wings hyaline. Closely resembling *capricornis* but the ovipositor is distinctly shorter, the proximal yellow of the abdomen is more distinctly delimited forming a distinct, broad band; the coxæ and femora are concolorous (not white or nearly as in the other species, the hind coxa somewhat colored only). Proximad, somewhat over a third of the abdomen is golden yellow (segment 2). Caudal margin of abdominal segments straight. Propodeum without a median carina but with oblique striæ from cephalad. The postmarginal vein is distinctly longer than the stigmal. Vertex punctate; thorax subpunctate, scaly and somewhat roughened. Hind coxa coarsely reticulated, the lines forming raised polygons. Hind femur beneath finely denticulate, not excised but with a distinct, complete tooth before apex, this tooth obtuse at apex. Scape yellow. Funicles 1-4 quadrate, a little or barely shorter than the pedicel; funicle 6 a little wider than long. Mandibles tridentate. Immediate base of abdomen dorsad purple.

From one female captured in jungle, May 19, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 3296*, Queensland Museum, Brisbane, the specimen on a tag, the head, hind legs and a fore leg on a slide.

A second female April 10, 1914 by sweeping jungle.

7. *MACRODONTOMERUS CAPRICORNIS* new species.

Female:—Length, 1.80 mm., excluding ovipositor which is somewhat longer than the globular abdomen.

Like *justitia* but dark æneous green, the pronotum, head and scutum dark purplish, the abdomen pale yellowish along proximal third, the distal half or more dark purplish. Also, the legs are more yellowish. The suture on face of mesepimeron is more triangular, the oblique sulcus on the episternum immargined and less distinct. There are no scattered thimble punctures on scutellum as with *justitia*. Propodeum plane, scaly.

Described from one female captured by sweeping in forest, August 2, 1913.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. *Hy 3297*, Queensland Museum, Brisbane, the above specimen on a tag, the head and hind legs on a slide.

8. MACRODONTOMERUS UNGUTTATIPENNIS new species.

Female:—Length, 2.50 mm., excluding the ovipositor which is about as long as the abdomen.

Rather dark metallic green with coppery tinges, the abdomen coppery; tarsi, tips of tibiæ (more of cephalic tibia) and scape straw yellow. Fore wing with a moderate-sized round fuscous spot in the center of the blade (somewhat caudad of center) opposite about apex of proximal third of marginal vein. Head with a very fine sculpture, thickly beaded with pin-punctures; thorax similarly sculptured. Propodeum subglabrous, delicately scaly, non-carinate but with short rugæ at cephalic margin between the spiracles. Segment 2 of abdomen slightly incised at meson of caudal margin, glabrous, the rest of the abdomen with polygonally scaly sculpture, segments 3, 4 and 5 also with the caudal incision (apparently obsolete, indicated in outline on 3 and 4, distinct on 5). Hind femur with two distinct yet small, obtuse pimple-like teeth, the distal larger, on the distal half yet not near apex. Funicle 1 longest, subequal to pedicel, a little longer than wide; 2 quadrate, 6 distinctly wider than long. Mesepimeron glabrous, with a semicircular suture dorsad of middle.

From one female captured September 28, 1913 (H. Hacker).

Habitat: Caloundra (Brisbane), Queensland.

Type: No. *Hy* 3298, Queensland Museum, Brisbane, the above specimen on a tag; a fore and hind leg and the antennæ on a slide.

9. MACRODONTOMERUS SEMISANGUINEUS new species.

Female:—Length, 2.10 mm., excluding ovipositor which is extruded for a length equal to a little more than that of the abdomen.

Dark metallic æneous green, the wings hyaline, the propodeum blue, the tegulæ and legs lemon yellow; hind femur orange yellow; caudal two pairs of coxæ metallic green. Valves of ovipositor black, whitish at extreme tip. Abdomen blood red. Antennæ black, the scape lemon yellow. Propodeum finely scaly; rest of thorax scaly and transversely lineolated. First two or three segments of abdomen excised caudad at meson but not greatly so. Mandibles tridentate. Funicle 1 longest, somewhat longer than wide, subequal to the pedicel, 6 somewhat wider than long. Pubescence not conspicuous. Abdomen scaly, laterad more or less longitudinally reticulated.

From one female caught April 18, 1914 (A. P. Dodd). Forest.

Habitat: Cloncurry, Queensland.

Type: No. *Hy* 3299, Queensland Museum, Brisbane, the specimen on a tag.

PROPLESIOSTIGMA new genus.

Female:—Characterized by the antennæ which are inserted near the clypeus and are 12-jointed with two short ring-joints, the club 3-jointed. Hind tibiæ with two spurs, the hind femora compressed but unarmed. Scutellum convex, simple. Stigmal vein not sessile, moderately long. Mesepimeron not incised caudad. Extruded part of the ovipositor short, not more than a third the length of the abdomen. Mandibles with four distinct teeth. Post-marginal vein a little shorter than the stigmal, not more than a fifth or sixth the length of the marginal which is shorter than the submarginal. Marginal fringes of fore wing very short. Propodeum at the meson transverse-linear, without a median carina. Abdomen normal.

1. PROPLESIOSTIGMA UNFASCIATUS new species. Genotype.

Female:—Length, 0.80 mm., excluding ovipositor.

Dark metallic blue green, the wings hyaline, the scape and legs pale straw yellow except intermediate and hind coxæ and proximal half or less of hind femur. Rest of antennæ

dark brownish. Thorax finely scaly reticulate. Abdomen suffused with brown, at distal two thirds crossed by a rather narrow orange transverse stripe which diffuses or broadens somewhat in the lateral aspect. Extruded valves of ovipositor black. Pedicel a little longer than wide, the funicle joints rather stout, all wider than long, enlarging distad, 5 largest and as long as the short pedicel.

From one female captured by sweeping in forest, Mount Pyramid, 2,000 feet, June 3, 1913 (A. P. Dodd).

Habitat: Gordonvale (Cairns), Queensland.

Type: No. *Hy 3300*, Queensland Museum, Brisbane, the specimen on a tag, the head and a hind leg on a slide.

DITROPINOTELLA new genus.

Female:—In J. C. Crawford's (1907) table of genera running to *Ditropinotus* Crawford but differing from that genus and nearly all the allied genera in bearing 12-jointed antennæ with one distinct ring-joint, the club only 2-jointed. Hind femora compressed, unarmèd, the tibial spurs normal. Occipital impression immargined. Propodeum with a pair of median carinæ close together and a line of foveæ running from the spiracle and around the caudal margin. Postmarginal vein somewhat shorter than the marginal, much longer than the stigmal. Scutellum simple. Mandibles distinctly bidentate, the inner margin of the second tooth broadly, obliquely truncate. Abdomen sessile, greatly compressed (a mere line from above), from lateral aspect broadly ovate, the ovipositor exerted for not more than a fourth of its length; segments not visible in dorsal aspect but as seen dorso-laterad all the caudal margins straight.

1. DITROPINOTELLA COMPRESSIVENTRIS new species. Genotype.

Female:—Length, 1.65 mm.

Bright metallic green, the wings hyaline, the legs yellow-brown but the coxæ washed with metallic. Scape colored like the legs. First three or four funicle joints subquadrate, shorter than the pedicel, joints 5 to 7 wider than long. Scape blackish at distal half. Head and thorax densely finely scaly, the propodeum glabrous, the scutum and pronotum with many scattered thimble punctures.

From eight specimens reared from galls with *Rhincopeltella nubilipennis* Girault, which see.

Habitat: Melbourne, Victoria.

Types: In the National Museum, Melbourne, five females on a tag; one fore leg, several hind ones and heads on a slide.

IDARNINÆ.

IDARNOMORPHA new genus.

Female:—Like *Idarnes* Walker but the antennæ are 13-jointed with one ring-joint, the club 4-jointed, the last joint minute, like a nipple yet articulated. Mandibles bidentate. Extruded portion of the ovipositor about three and a half times longer than the body. Postmarginal vein nearly a half longer than the rather long stigmal, as long as the marginal vein. Funicle joints barely longer than wide, shorter than the pedicel. Ring-joint large. Abdomen depressed, longer than the thorax. Mandibles tridentate. Coxæ not especially long. Scutellum flat, with two grooves, one on each side.

Male:—Antennæ 3-jointed, the last two joints forming a club. Mandibles strongly bidentate. Tarsi 5-jointed, the three intermediate joints transversely linear. Head with an antennal fovea, longer than wide. Wings entirely (apparently) absent.

1. IDARNOMORPHA SUBÆNEA new species. Genotype.

Female:—Length, 1.75 mm.

Dark metallic green, the wings hyaline, the lateral part of pronotum yellowish, the scutellum and axillæ brown, the propodeum and abdomen darker. Legs lemon yellow, including the coxæ. Antennæ brown. Vertex and thorax densely scaly, the propodeum glabrous. Venter of pronotum yellowish. Valves of ovipositor black. Most segments of abdomen at caudal margin with a mesal notch. Propodeum scaly laterad of spiracle and at caudal margin caudad of it; noncarinate.

Male:—Length, 2.80 mm.

Head, pronotum and upper parts of the rest of the thorax chestnut brown, the under parts and sides of last two thoracic regions, the abdomen and legs (except the tibiæ) lemon yellow. Distal antennal joint lemon yellow, the others brown, the first as long as the distal two combined, the distal one shorter than the intermediate joint. Tibiæ brown, encircled at apex by strong, short spines.

Two males, one female reared from figs with *Ceratosolenia ficophaga* Girault.

Habitat: Gordonvale (Cairns), Queensland. Jungle, September 18, 1912.

Types: No. Hy 3301, Queensland Museum, Brisbane, a female on a tag, its head and two males on a slide.

GONIOGASTRELLA new genus of Girault and A. P. Dodd.

Differs from *Goniogaster* Mayr in that the hypopygium is not prominent, the mandibles bear two acute teeth, the pronotum is quite normal, transverse linear and convex as seen from above, by far not as large as either the meso- or metanotum. The antennæ bear an additional club joint, the fourth joint distinct but small; antennæ 13-jointed with two ring-joints. Segments of the depressed abdomen produced ventrad and widening. Coxæ long, conical, the tibiæ not quite as long as their respective femora, the caudal coxæ very long, as long as the cephalic femur which is one and two thirds the length of the cephalic coxa. *Mesepimeron* not incised. Scutellum subconvex, simple. Parapsidal furrows complete, distinct. Postmarginal vein nearly as long as the marginal, the shorter stigmal curved. Ovipositor extruded for nearly twice the length of the body. Caudal tibial spurs double, slender. Axillæ widely separated. First tarsal joint short in cephalic legs, long in the others.

1. GONIOGASTRELLA CAUDATUS new species. Female. Genotype.

Length, 2.50 mm., excluding ovipositor.

Æneous green, the wings hyaline; proximal half of abdomen ventrad and slightly dorsad, legs and scape pale yellow; rest of antenna black. Thorax densely reticulated, the lines not raised, the propodeum smoother, noncarinate. Pedicel a little longer than any of the funicle joints which are subequal, each a little longer than wide; scape slender.

Habitat: Gordonvale (Cairns), Queensland (type) and Bachelor, Northern Territory. Jungle. Associated in figs with *Idarnomorpha subænea* Girault. November.

Types: No. Hy 3302, Queensland Museum, Brisbane.

A common species in the jungle at Gordonvale, mid-November.

GENUS PHILOTRYPESIS Foerster.**1. PHILOTRYPESIS LONGIVENTRIS** new species. Female.

Length, 2.75 mm., excluding the ovipositor and extended part of abdomen. Brownish black, the legs yellowish brown, the wings hyaline; sides and venter of abdomen yellowish brown. Scape concolorous with legs, the flagellum black, the black pedicel subequal to the first funicle joint, the next two funicle joints (2 and 3) subequal, each a little shorter than 1;

distal funicle joint a little longer than each of the three club joints. Clypeal area yellow. Mandibles bidentate. Body, including propodeum and abdomen, finely scaly, the propodeum without a median carina. Postmarginal vein twice the length of stigmal; ovipositor twice the length of the tubular part of abdomen, as long as the body.

Habitat: Gordonvale (Cairns), Queensland. Jungle, June 4, 1913.

Type: No. *Hy 3303*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

A second female March 29, 1914, jungle at Halifax (Ingham), Queensland and one at Gordonvale, April, 1913. The propodeal spiracle is minute and far caudad; ventral half of the face yellowish.

2. PHILOTRYPESIS SILVENSIS new species.

Female:—Length, 2.50 mm., excluding segment 7 of abdomen and ovipositor.

Golden yellow; abdomen with a broad median stripe of black, commencing out from base and running to about the middle where a complete narrow cross-stripe terminates it; about its middle it projects laterad; a little farther distad another cross-stripe, twice broader than the other and obtusely conically prolonged distad at the distal meson. An elongate spot at meson. Also the meson of the tube which is somewhat longer than the rest of the abdomen, the portion of the ovipositor beyond it a little longer than the body. Scape four times the length of the pedicel, yellow, dusky toward tip; rest of antennæ black; funicle 1 longest, a little longer than the pedicel, the distal joint longer than wide. Mandibles bidentate. The first funicle joint is distinctly longer than wide (in *angela* it is quadrate). Like the other species.

Seven females from a fig, in jungle, January 21, 1914 (A. P. Dodd).

Habitat: Gordonvale (Cairns), Queensland.

Type: No. *Hy 3304*, Queensland Museum, Brisbane, a female on a tag, the head on a slide.

3. PHILOTRYPESIS ANGELA new species. Female.

Length, 2.26 mm., excluding the black ovipositor which is nearly as long as the body.

Deep pinkish orange, the wings hyaline, the legs and scape concolorous, the flagellum dusky. Three transverse black spots across meson of abdomen, the first (proximal) smallest, all more or less triangular; also a black dot at meson, apex of fifth segment and which is nearly joined to the narrow, black dorsal surface of the (following) two produced or tubular segments of which the apparent second is shorter. Postmarginal vein longer than the stigmal. Propodeum with three (apparent) delicate and obscure sulci at meson, separate; scutellum simple but together with the scutum with a median longitudinal impression. Thorax finely reticulated. Antennæ 13-jointed, three ring and club joints, the funicle joints only slightly longer than wide and more or less equal. Mandibles bidentate.

Habitat: Ayr, Queensland. Forest, November 6, 1912.

Type: No. *Hy 3305*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

4. PHILOTRYPESIS LONGICAUDA new species of Girault and A. P. Dodd. Female.

Almost exactly similar to *angela* but funicle 1 is plainly longer than wide, the club joints are less distinctly separated but the sutures distinct, the three ring-joints are concolorous with the scape while the three marks on abdomen along the meson are not transverse spots but round dots; the fourth (distal) one is V-shaped and then attenuate caudad along the meson to segment 7. The delicate sulci on the propodeum are obscure in both species.

Habitat: Gordonvale (Cairns), Queensland. Forest, December 4, 1913.

Type: No. *Hy 3306*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

5. PHILOTYPESIS IMMACULATA new species.

Female:—Length, 3.80 mm., excluding ovipositor which is extruded for a length equal to that of the body.

Deep golden yellow, unmarked except the black median line of the tubular part of the abdomen; funicle and club black; funicle 1 subequal to the pedicel, a little longer than wide, the following segments but very little shorter. Mandibles with a weak, minute third tooth. Segment 2 of abdomen longer than 3, its caudal margin with a slight incision at meson. Allied with *angela*.

From one female caught by sweeping bushes, October 10, 1913 (G. F. Hill).

Habitat: Port Darwin, Northern Territory.

Type: No. *Hy 3307*, Queensland Museum, Brisbane, the specimen on a tag, the head on a slide.

The species agree with Ashmead's diagnosis but in *longicauda* it was noticed that the long tubular segment of the abdomen is single and segment 7 apparently, segment 6 not tubular and black along the meson only, the V-shaped black marking at base of segment 5. Segment 7 is also black along the meson and is tumid toward tip, thus giving an appearance of two segments at the tumid place but there is no articulation there, seemingly.

PARACOLYSTICHUS new genus.

Female:—In Ashmead's table of genera (Ashmead, 1904) running to *Colystichus* Mayr but the antennæ are inserted in the middle of the face, the joints normal, the abdomen is greatly compressed, seen from the side much convexed above, from dorsal aspect forming a line or nearly, the valves of the ovipositor distinctly extruded but barely for more than a sixth or seventh of the length of the abdomen which is longer than the rest of the body. Propodeum very short at the meson. Mandibles tridentate. Parapsidal furrows delicate, curved laterad. Postmarginal and stigmal veins well developed the former distinctly the longer, only about a fourth shorter than the marginal. Hind tibial spur single, long and slender, as long as the first tarsal joint (only one hind leg seen).

1. PARACOLYSTICHUS COMPRESSIVENTRIS new species. Genotype.

Female:—Length, 1.20 mm.

Dark reddish coppery, the sides of the abdomen dark æneous green, the wings hyaline; tibiæ and tarsi pale yellow except the former dorsad. Antennæ wholly black, also the valves of the ovipositor. Thorax finely reticulated. Scape cylindrical, pedicel oval, somewhat longer than any of the funicle joints all of which are a little wider than long and subequal. Club without a terminal spine, conic ovate, not much enlarged. Abdomen sculptured like the thorax. The segments not greatly lengthened, 2, 6 and 7 longest.

Described from one female captured on a window in a forest clearing, April, 1912.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. *Hy 3308*, Queensland Museum, Brisbane, the above specimen on a tag, the head and a hind leg on a slide.

2. PARACOLYSTICHUS AMPLIPENNIS new species.

Female:—Length, 1.30 mm.

Very similar to *compressiventris* Girault but a little larger, the scutellum bears scattered thimble punctures (only one or two on *compressiventris*), the antennal joints are a little stouter, the scape is yellow at proximal three fourths and the fore and hind wings are very much broader, being the characteristic of the species. Thus, the fore wings bear about thirty lines.

of fine, indistinct discal cilia (only about eighteen in *compressiventris*). Also, the postmarginal vein is as long as the marginal. Hind tibial spur single, long and slender.

From one female captured on the window of a wool warehouse, October 30, 1911.

Habitat: Brisbane, Queensland.

Type: No. *Hy* 3309, Queensland Museum, Brisbane, the above female on a slide.

EPICOLYSTICHUS new genus.

Female:—Exactly similar to the preceding but there are *three* ring-joints instead of *two*, the antennæ 13-jointed; also the abdomen is somewhat less compressed, the propodeum is somewhat longer and with delicate median and lateral carinæ, the isolated small round spiracle *central* (apparently the same in the preceding but the spiracle larger and in its usual position cephalad but I could not be certain). The hind tibiæ bears two spurs of which one is long and slender as in *Paracolystichus*, twice the length of the other. Otherwise, the two agree.

1. EPICOLYSTICHUS ÆREICORPUS new species.

Female:—Length, 1.25 mm.

Like the preceding species but the thorax less coppery or brown, the tibiæ and tarsi reddish brown and the scape yellowish except at distal third. The antennæ very similar. Lateral ocellus distinctly not touching the eye margins. Abdomen sculptured much like the thorax.

From six specimens found on flowers of a forest tree, January 4, 1913.

Habitat: Gordonvale (Cairns), Queensland.

Types: No. *Hy* 3310, Queensland Museum, Brisbane, three specimens on a tag, a head and hind leg on a slide.

GENUS TRICHAULUS Mayr.

1. TRICHAULUS AENEICORPUS new species.

Female:—Length, 1.33 mm., excluding ovipositor.

Dark æneous, the wings hyaline; knees, tibiæ and tarsi pale and distal portion of femora. Antennæ and ovipositor black. Thorax and abdomen uniformly scaly reticulate. Flagellum clavate; funicle 1 twice the size of either ring-joint, increasing in size, 5 longest, shorter than the pedicel. With the habitus of *Eupelmus*; slender. Antennæ 13-jointed with three ring-joints, the funicle joints wider than long, the club 3-jointed. Parapsidal furrows complete. Scutellum convex, simple. Mandibles weakly tridentate. Stigmal vein with a short neck, a fourth the length of the marginal, a little shorter than the postmarginal. Abdomen sessile, elliptical oval (dorsal aspect), segments 2 and 6 together occupying three fourths of the surface, 2 longest, their caudal margins incised at meson; ovipositor not quite as long as the body; segment 2 occupying a third of the surface, 6 not much shorter than it. Propodeum noncarinate, plane, the spiracle round, cephalad. Mesepimeron not incised. Hind tibial spur single, small. Hind femur simple. Parapsidal furrows ending laterad before the pronotum. Front femur somewhat distinctly swollen but unarmed.

From one female captured in forest, December 24, 1911.

Habitat: Double Island (mainland) Cairns, Queensland.

Type: No. *Hy* 3311, Queensland Museum, Brisbane, the specimen on a tag; head and hind legs on a slide.

KOEBELEA new genus.*

1. KOEBELEA FUSCA Girault. Female. Genotype.

Length, 1.60 mm., excluding the ovipositor.

Yellowish brown, the abdomen transversely striped with black except at base and tip; legs concolorous, the flagellum dusky, the wings hyaline; valves of ovipositor black; ocelli

* Named by Ashmead but the type species was not described. For diagnosis, see Ashmead (1904).

in a distinctly curved line. Subpunctate, the propodeum weakly longitudinally striate centrally, laterad with weak scaly sculpture; scutellum with a grooved line near each lateral margin. Antennæ 13-jointed with two ring-joints, the club 3-jointed, terminating in a spur which has the appearance of being a true joint (if so a fourteenth joint); pedicel somewhat longer than any of the following joints, 3 of the funicle being subquadrate. Mandibles tridentate. Ovipositor very slender, curled. Postmarginal vein longer than the stigmal, which is subequal to the marginal. Axillæ with an ovate black spot in the cephalo-lateral angle. Ovipositor twice longer than the body.

Habitat: Cairns, Queensland.

Type: No. I. 1334, South Australian Museum, Adelaide.

2. KOEBELEA CONCISIVENTRIS new species.

Female:—Length, 1.70 mm., excluding ovipositor.

Very similar to *fusca* Girault but at once differing in the length of the ovipositor which is only a third longer than the body, in the type species over twice the length of the body. Also, the head is wider, the abdomen flatter and broader, the antennæ concolorous (not dusky black as in *fusca*) and the five black abdominal stripes are more distinct. The head and thorax in both species are scaly, the propodeum is noncarinate, glabrous medially and on each side of meson with the appearance of weak oblique striæ (really streaks of lighter yellow).

From several females reared with several of *fusca* from the same fig, jungle, January 16, 1914 (A. P. Dodd).

Habitat: Gordonvale (Cairns), Queensland.

Type: No. Hy 3312, Queensland Museum, Brisbane, one female on a tag with a female of *fusca*; head on a slide with a head of *fusca*.

Idarnomorpha and *Goniogastrella* were also present in the fig with the two species of this genus.

GENUS IDARNOIDES Girault.

Like *Idarnes* Walker but the scutellum without grooves, the antennæ 12-jointed with two ring-joints, the funicle joints mostly subquadrate but the first distinctly longer than wide. Mandibles bidentate. Marginal vein twice or more the length of the stigmal, the postmarginal long, nearly twice longer than the stigmal. Parapsidal furrows complete. Ovipositor longer than the body. Scutellum flat.

1. IDARNOIDES CHANNINGI Girault. Female. Genotype.

Length, 1.65 mm.

Deep metallic blue-green, finely polygonally reticulated; wings hyaline; scape and legs straw yellow, the pedicel brown; valves of ovipositor and flagellum black. Scape long and slender.

Habitat: Cairns, Queensland.

Types: No. I. 1336, South Australian Museum.

PODAGRIONINÆ.

PODOGRIONELLA new genus.

This genus differs from *Podagrion* Spinola in having the club solid and a transverse suture across the scutellum. The postmarginal vein is over twice the length of the stigmal.

1. PODAGRIONELLA FASCIATIPENNIS new species. Female. Genotype.

Length, 5 mm., excluding the ovipositor.

Dark æneous green, shagreened. Fore wings hyaline to subhyaline but with a deep purplish black, nearly straight fascia nearly across them, its distal margin taking in the short

stigmatal vein. Antennæ black, the distal third of the club whitish, the funicle brown. Caudal coxæ bluish. Proximad on the fore wing, at middle of submarginal vein, is an irregular cross-stripe of smoky brown; this may be absent. Funicle 1 longest, subequal to the pedicel, the two distal joints barely longer than wide. Mandibles tridentate, the inner tooth much shorter and truncate, the outer two subequal, acute. Scutellum glabrous caudad of the transverse suture. Exserted portion of the ovipositor not as long as the body.

Habitat: Gordonvale (Cairns), Queensland. Forest, December 2, 1912. Not abundant.

Types: No. *Hy 3313*, Queensland Museum, Brisbane, two females on tags, a head on a slide.

2. *PODAGRIONELLA BELLA* Girault. Female.

Length, 2.25 mm., excluding the extruded ovipositor which is a little longer than the abdomen.

Like *Podagrion hyalina* Girault but the legs all yellow-brown, the trochanters, tarsi, distal fifth of hind coxa and proximal half of hind femur, white. In the hind femur, a dusky spot at upper edge near distal third, the teeth black; prolongation of hind tibiæ somewhat longer and more curved than usual. Abdomen wholly purplish black, tegulæ yellow-brown; abdomen without a petiole but stalked. Funicle black-brown, the club black, the pedicel and scape yellow-brown. Posterior femora beneath with nine teeth, the last tooth yellow, the eighth tooth a mere tubercle, teeth 1, 3 and 4 longest of the black teeth, the ninth as large as 1 or nearly; teeth 5-8 a descending series of heights. First funicle joint longest, nearly as long as the pedicel, the last three joints plainly wider than long, joint 4 (funicle) quadrate; club plainly not as long as the funicle. Propodeum with irregular foveæ, rugose, no median carina, the apex of the scutellum smooth and shining distad of the transverse suture, the head and thorax otherwise scaly and usual.

Habitat: Gordonvale (Cairns), Queensland. Jungle, May 11, 1913.

Type: No. *Hy 3314*, Queensland Museum, Brisbane, the female on a tag; an antenna and a caudal leg on a slide.

3. *PODAGRIONELLA PENTLANDENSIS* Girault. Female.

Length, 5.10 mm., exclusive of ovipositor.

Very similar to the type of the genus but the antennal club darkens at tip, the flagellum reddish brown, the pedicel darker. The abdominal petiole is shorter, very short, wider than long; the distal two funicle joints are slightly wider than long; the cross dash on the fore wing is the only fuscation present in these wings. The whole body is more robust, the abdomen stouter and longer. Otherwise, structurally, like *fasciatipectennis* with which I have compared it but the postmarginal vein is plainly not twice the length of the stigmal.*

Habitat: Capeville (Pentland), Queensland. Forest, January 6, 1913.

Type: No. *Hy 3315*, Queensland Museum, Brisbane, the female on a tag and a slide bearing the caudal femur and the head.

GENUS PROPODAGRION Girault.

Differs from *Podagrionella* Girault in having the club 3-jointed and from *Podagrion* in bearing a cross-suture on the scutellum; the postmarginal vein is twice the length of the stigmal and the propodeum is concave and lacks a median carina.

1. *PROPODAGRION WORCESTERI* (Girault). Female. Genotype.

Podagrion worcesteri Girault.

Length, 2.75 mm., excluding ovipositor which is about the same length.

Agreeing somewhat with *washingtoni* Girault in coloration but the legs are yellow-brown, the tarsi white while the yellow on the abdomen is dull and at sides and venter of base;

* The femoral teeth appear to have been overlooked.

the fore wings have a distinct dusky, curved dash from the knob of the stigmal vein which extends about half way across the wing; it is not black, merely dusky. Posterior femora beneath with eleven teeth, all distinct, the first largest, then 5 and 7, 3 and 9; 2 and 11 smallest, then 4, then 6, 8 and 10 which are subequal, each not more than half the length of 1. Coxæ green, the tibiæ dark except at tip, at base broadly ringed with yellow-white. First funicle joint much longer than the pedicel, the distal one somewhat wider than long; joints 2 to 4 rather long, 1 longest. Disk of propodeum without a median carina, shallowly concaved, the concavity punctate, without it the surface rugose and sulcate, the middle of the dorso-lateral aspect with a conspicuous oval and deep fovea whose long axis is longitudinal; punctures of propodeal disk about the same as those of the rest of the thorax. Scutellum smooth and shining distad of the transverse line or suture.

Habitat: Gordonvale (Cairns), Queensland. Jungle, May 11, 1913.

Type: No. *Hy 3316*, Queensland Museum, Brisbane, the female on a tag and a slide with the caudal femora and the head.

GENUS PODAGRION Spinola.

1. PODAGRION OBSCURUM (Westwood). Female.

Palmon obscurum Westwood. Trans. Ent. Soc. Lond., IV, pt. 4, p. 260 (1847).
Australia.

2. PODAGRION OLENUS (Walker).

Palmon olenus Walker, 1839, pp. 7-8.

“*Fem.*—Corpus longum, angustum, convexum, scitissime squameum, parum nitens, parce hirtum: caput transversum, breve, thorace paullo latius; vertex sat latus; frons excavata, abrupte declivis: oculi medioeres, non extantes: ocelli vertice triangulum fingentes: antennæ clavatæ, crassæ, apice quasi truncatæ, thorace non longiores; articulus 1^{us} sublinearis; 2^{us} longicyathiformis; 3^{us} et 4^{us} brevissimi; 5^{us} et sequentes breves, transversi, usque ad clavam latescentes: thorax sublinearis: prothorax transversus, subquadratus, sat magnus: mesothoracis parapsidum suturæ non bene determinatæ: petiolus brevis: abdomen compressum, læve, nitens, thorace multo brevius et angustius: oviductus vaginæ pubescentes, corpore longiores: metapedum coxæ magnæ, femora maxima ovata subtus dentata, tibiæ areuatæ: alæ medioeres.

Sp. 1. *Pal. Olenus*. Fem. *Æneo-viridis*, antennæ fulvæ, abdomen subtus fulvum, pedes fusco-fulvi, femora viridia, alæ limpidae.

Æneo-viridis: oculi et ocelli rufi: antennæ fulvæ: abdomen cyaneo et cupreo-varium, subtus fulvum; oviductus rufus; vaginæ nigrae: pedes fulvi; coxæ virides; femora viridia; tibiæ fuseæ: alæ limpidae. (Corp. long. lin. 2; alar. lin. 2½.)

Sydney, New South Wales.”

3. PODAGRION SPILOPTERION Cameron. Female; male.

Length, 3 mm.; ovipositor, 2 mm.

Dark blue; abdomen dark violaceous, hind tibiæ and femora black, tarsi testaceous, antennal scape fulvous; wings hyaline, nervures black, a large blackish-violaceous cloud on the marginal nervure, commencing near its base and reaching to near the apex, enclosing the stigmal nervure, becoming slightly, gradually widened to shortly beyond the middle, then roundly narrowed, the sides at the apex rounded, the centre transverse; it extends to the top of the apical third. Face closely, finely punctured; the punctures close and regular. Mandibles darker red, brighter in tint at the base. Pro- and mesonotum and scutellum closely punctured; the scutellum with more distinct brassy tints; upper part of basal mesopleuræ strongly, obliquely striated, it forming a triangle, bordered below by a keel; the rest of it

closely, finely reticulated. Propleuræ closely, finely punctured, more or less striated. Metapleuræ finely, closely punctured; there are, on the last femur, about six irregular teeth, the basal three larger and more widely separated; they are as long as the coxæ, which are closely and more finely punctured than the femora.

The male is similar. As is usual with metallic species, the amount of the brassy and rufous tints varies. The fore tibiæ may be testaceous at the base and apex, as well as below. Probably the femoral teeth vary in size and number, as I have noticed to be the case with other species. The apical joints of the antennæ form a not very clearly defined club. The sides of the mesonotum are bounded by a smooth furrow, inside of which is a flatter one, double its width, which again is bordered on the inner side by an irregularly crenulated furrow. The central part is finely rugose, divided into two almost equal parts by a narrow smooth furrow; the apical part is depressed in the middle.

Except for the large alar cloud, this species does not differ from typical *Podagrion*, which have long been known to live in the egg-cases of *Mantis*.

4. *PODAGRION BENEFICIUM* Girault. Female; male.

Length, 2.5 mm.; with ovipositor, 5.25 mm.

Dark bright metallic green with æneous and bright bluish tinges, the face brighter green; exerted portion of ovipositor black; antennæ black, excepting the dark metallic scape which is rufous laterad and ventrad but sometimes wholly black or metallic; trochanters, knees, tibiæ and tarsi rufous, the coxæ and femora concolorous with the body, the caudal tibiæ blackish for distal four fifths; distal tarsal joint black, the posterior tarsi often pallid yellowish. Oral area black. Wings hyaline, the venation dusky. Teeth of posterior femora black; immediate base of abdomen more or less slightly rufous especially ventrad at proximal half. Eyes and ocelli concolorous, garnet. Mandibles black at tip. Bright metallic blue especially on the abdomen and legs.

Lateral ocelli their own diameter from the eye margins. Head all over and dorsal thorax densely polygonally sculptured or punctate, the punctures moderate to fine, the abdomen, coxæ and femora polygonally reticulated, the sides of the pro- and mesothorax more roughly so. General suture fine but distinct. Head, antennæ and thorax bearing short, greyish, moderate pubescence; also on the posterior segments of the abdomen and the legs. Posterior femora with six large teeth and a seventh minute one just proximad of the fifth tooth. Metathorax with a conspicuous V-shaped median carina whose apex is at the meson cephalad; the large area cephalo-laterad of each branch of the carina is densely punctate nearly like the scutellum while the mesal area included by the two branches of the carina is the same but also traversed by an irregular, narrow median carina which sends off oblique shoots making the area rugose. Laterad, there are no carinæ excepting a thin longitudinal one a slight distance laterad of the spiracle. The metathoracic spiracle is elliptical and slightly curved at one end, thus subreniform. A fovea is just caudad of it.

Marginal vein of fore wing long but shorter than the submarginal, the postmarginal vein short but longer than the stigmal. Antennæ 13-jointed, with one ring-joint which is distinct; funicle joints shortening distad, the distal two distinctly wider than long, the first two subequal, a fourth longer than wide, each slightly longer than the pedicel; joint 3 quadrate; joints 4 and 5 subequal, slightly wider than long while joints 6 and 7 are subequal, each slightly shorter than joint 5; club long, ovate, much wider than the funicle, its three joints subequal in length and as long as the proximal joint of the funicle. Mandibles dentate.

The male is the same but the funicle joints are all distinctly longer, the club not wider than the funicle or hardly so, its distal joint short; antenna lighter distad and the abdomen differs as it should for this sex in this genus. The proximal funicle joint is nearly twice longer than wide, longer than the second joint and none of the joints of the funicle are wider than long.

Habitat: Gordonvale (Cairns), Queensland. Mantid eggs in forest, July 4, 1912.

Types: No. *Hy 1170*, Queensland Museum, Brisbane, two pairs on separate tags.

Eleven females of *beneficium* reared from a mantid egg case found on an *Eucalyptus* tree in forest at Gordonvale, Queensland, April 12, 1913. Examined from them 21 femora and 20 antennæ. The femoral teeth were six in number 18 times when the formula was from proximal—long, short, long, short, long, long; tooth 4 always distinctly shorter than 5, tooth 2 shortest. Five teeth occurred in one case (asymmetry), the small second tooth absent. Seven teeth occurred in the remaining two cases and were asymmetrical—in one the formula was long, short, long, short, short, long, long (with 2 longer than 5, here extra); in the other the formula was long, short, short, long, short, long, long (with 2 shorter than 5).

In this species six teeth seem usual; the distal two teeth usually about equal in length but the last distinctly broader at base. The twenty antennæ showed no marked variation, the distal two funicle joints always distinctly wider than long, the proximal two longer than wide. Thus, in this genus, the antennal characters seem to be a better specific character than the form and number of femoral teeth, though in the latter the range of variation, perhaps, is not great and a deviation of three or four (as regards number) in either direction from a known formula would be indicative of specific distinctness.

A twelfth female of *beneficium* captured December 2, 1912 by sweeping in forest at Gordonvale showed no antennal variation but asymmetrical development of the femoral teeth, there being six teeth on one of the usual formula and seven on the other, the formula of the latter similar to one of the previous formulæ of this number of teeth.

5. *PODAGRION WASHINGTONI* new species. Female.

Length, 5. mm., excluding ovipositor.

At once distinguished from *beneficium* Girault by the fact that the posterior femora beneath bear more than seven teeth, the antennæ are reddish brown, the median carina of the propodeum divides at a point at about half way to the middle from base, the rufous femora of the first two pairs of legs, in the distal two funicle joints being slightly longer than wide and in general coloration. Differs from *olenus* Walker in having the first two pairs of femora rufous.

Brassy metallic green, the abdomen (dorsal aspect) with a broad orange yellowish band encircling it just out from (not immediately at) base, ventrad yellow along proximal half or more, the petiole very short, the ovipositor long and brown, the valves black; coxæ dark, fuscous toward tip, the rest of the legs except posterior femora, reddish brown. Venation dusky, the wings hyaline. Antennæ dusky brown, the flagellum uniformly colored, the funicle joints all slightly longer than wide but shortening slightly toward apex in succession, the club joints unequal, the club slightly enlarged. Densely punctate, including the propodeum; the branches of the median carina run nearly laterad ending in the lateral margin and joining it which is carinated (dorsal aspect); several obscure, irregular carinæ from cephalic margin running short distances caudo-laterad, one apparently going into the branch of the median carina. Metallic part of abdomen shining, with a polygonal or scaly sculpture. Knees and tarsi whitish, the posterior tibiae darker centrally. Posterior femora beneath with nine teeth, the first large and acute, the third, fifth, sixth and seventh smaller, moderate, more or less equal, teeth 2 and 4 smallest, 4 only half the size, or less, of 2; teeth 8 and 9 together forming a large mound-like projection, incised along its tip to form the two teeth, the base of the two more than twice the length of the base of the tooth and proximal near base of the proximal side are two minute pimple-like teeth or projections, rather obscure and not enumerated as distinct teeth.

Habitat: Pentland, Queensland. Forest. January, 1912.

Type: No. *Hy 3317*, Queensland Museum, Brisbane.

Respectfully dedicated to Booker T. Washington.

6. PODAGRION PAX Girault. Female.

Length, 3.10 mm., exclusive of ovipositor, which is longer.

Like *beneficium* Girault but the seven teeth of the posterior femora different; thus teeth 4 and 5 are nearly equal, 4 a little longer, tooth 2 is smallest, while 1, 3, 6 and 7 are longest, 1 acutely, 3 obtusely, conical; all of the teeth distinct. And the segmentation of the antenna is different, the penultimate funicle joint longer than wide, the ultimate subquadrate, the first two funicle joints distinctly more than a fourth longer than wide, nearly twice longer than wide, while joint 3 is subequal to them. The club is large as in species of *Polynema*. Type re-examined. Corrected description.

Habitat: Gordonvale (Cairns), Queensland. From mantid eggs, forest, April 27, 1913.

Type: No. *Hy 3318*, Queensland Museum, Brisbane, the female on a tag, the head and a caudal leg on a slide.

7. PODAGRION PAVO new species.

Female:—Length, 3.20 mm., excluding the exerted part of the ovipositor which is about the same length.

Dark metallic green, the propodeum, hind coxæ and abdomen bluish, the wings hyaline; scape, middle of funicle, venter of abdomen, tibiæ, tarsi, trochanters and knees brownish yellow; rest of antennæ black or nearly. Propodeum with a distinct V-shaped carina whose apex is at base and a carina laterad of the spiracle. Club somewhat enlarged; joints 1 and 2 of funicle subequal, each shorter than the pedicel, a little longer than wide; distal funicle joint over twice wider than long; ring-joint distinct. Hind femur with six teeth—large, small, large, large, large, small from proximad; teeth 3 and 4 longest, subequal. Body with the usual sculpture, the scutellum and axillæ smoother, scaly, the scutellum smooth at apex. Hind femur, mesal aspect, reddish yellow.

Male:—Length about the same.

Totally different in color, very brilliant. Bright metallic green, the antennæ, legs and abdomen (orange) bright yellow; a large oval spot at base of hind coxa laterad and distal fourth or more of abdomen above metallic green. Hind tibiæ reddish brown, black centrally. Hind femur with three large teeth. Antennæ 13-jointed, slenderer, the funicle joints all subquadrate after the first two which are as in the female.

Described from two males, four females on a card labelled “22. Bred from eggcase of Mantis, *Tinodera australiana* Leach. 22 ♀, 2 ♂, 15-3-1903. J. A. K.”

Habitat: Melbourne, Victoria.

Types: The above specimens; male and female antennæ and a female hind leg on a slide. In the National Museum, Melbourne.

The species derives its name from the gaudy colours of the male. The host is the common *Tinodera australasica* of Leach.

Later, four females were found on a card in the same collection labelled “88. March 19, 1903, Melb.” and reared from the same host. The four hind femora of the males showed no variation in the number of teeth and none was found in the female specimens except slight differences in size.

8. PODAGRION GROTHII new species.

Female:—Length, 3.50 mm., excluding the very long ovipositor which is over twice the length of the body.

Distinguished from the other Australian species by the extremely long ovipositor. From *beneficium*, which it resembles in color, it differs in having the seventh tooth of the hind femur large, 6 and 7 shortest and subequal, confluent broadly at base; also the median carina of the propodeum does not branch until near the apex of that region (or caudad); the distal two funicle joints are distinctly longer than wide and the first funicle joint is very much longer than the pedicel, joints 1-5 subequal, longest. Distal club joint distinctly shorter than the proximal. From *washingtoni*, it may be distinguished by the forking of the median carina

of propodeum farther caudad in this species, the lesser number of femoral teeth and the different coloration. From *pax* it differs in having the femoral teeth very different and the club not noticeably enlarged.

Male:—The same but the second femoral tooth is very small.

Described from one pair taken from a mantid eggmass on the foliage of *Careya* in forest, near jungle, June 15, 1913 (A. P. Dodd).

Habitat: Gordonvale (Cairns), Queensland.

Type: No. *Hy 3319*, Queensland Museum, Brisbane, the above female on a tag, the head and a hind leg on a slide.

Dedicated to Hugo Grotius.

9. *PODAGRION BATESI* new species.

Female:—Length, 2.50 mm. excluding ovipositor which is extruded for a length equal to that of the body or nearly.

Colored like *beneficium* Girault nearly. Teeth on caudal femur six in number, from proximad, large, small, large, large, large, small; teeth 2 and 6 shortest, subequal, 3 and 4 longest. subequal. Pedicel somewhat longer than funicle 1; funicles 1-3 quadrate, subequal, 4 wider than long, a little longer than 5, 6 or 7 which are subequal, distinctly wider than long. Club two thirds the length of the funicle.

Differs from *beneficium* Girault in bearing but six teeth on hind femur, in having the scutellum smoother at apex, the propodeum uniformly punctate, the distal four funicle joints wider than long, the wholly brown antenna. Median carina of propodeum V-shaped, diverging widely from base (cephalad).

Differs from *pavo* in the different color of the male, in not having the mesal surface of hind femur reddish brown, in having the antennæ wholly brownish and so on. From *pax* in lacking a minute tooth dorsad at proximal third of hind tibia, in not having the scutellum uniformly sculptured to apex, in having the propodeum between the arms of the median carina sculptured with dense punctures not rugulose; also in the shorter distal funicle joints.

The single specimen of the male was lost just before describing it but the male is colored much like the female except that the abdomen bears much rufous dorsad. The teeth on the hind femur were not seen.

From a single specimen taken from a mantid eggcase, April 19, 1914 (A. P. Dodd).

Habitat: Cloncurry, Queensland.

Type: No. *Hy 3320*, Queensland Museum, Brisbane, the specimen on a tag.

Dedicated to Henry Bates.

10. *PODAGRION HYALINA* (Girault). Female.

Podagrionella hyalina Girault.

Length, 2.20 mm., excluding ovipositor which is black and longer than the body.

Dark metallic green, the wings hyaline. Venter of abdomen and the legs, excepting coxæ and the posterior femora, reddish brown, the coxæ concolorous, the caudal femora with more or less metallic green. Antennæ fuscous, the scape metallic toward tip. Posterior femora with eight teeth, the third one minute, barely indicated, the others distinct, the first longest. Distal funicle joints wider than long, the club enlarged, deep black. Petiole of abdomen very short. Propodeum without lateral carinæ, the median carina V-shaped from base, each arm running meso-caudad. Stigmal vein very short. Postmarginal vein only somewhat longer than the stigmal. Scutellum glabrous at apex.

Type re-examined.

Habitat: Longreach, Queensland.

Type: *I. 1256*, South Australian Museum.

GENUS PACHYTOMOIDEA Girault.

This genus differs from *Podagrion* Spinola in having the club solid and enlarged, the distal four funicle joints transverse, the club as long as the funicle. The scutellum lacks the cross-suture before apex and the postmarginal vein is only a little longer than the stigmal. Corrected description.

1. **PACHYTOMOIDEA MAGNICLAVUS** Girault. Female. Genotype.

Length, 3 mm., exclusive of ovipositor which is not quite as long as the body.

Metallic æneous green, the venter of abdomen, the tibiæ, the scape, pedicel and funicle, brown; club and valves of ovipositor black. Wings hyaline, the postmarginal vein short but nearly twice longer than the stigmal. Posterior femora beneath with seven large teeth. Polygonally sculptured. Median carina of metathorax and propodeum divided just out from origin, then diverging. Scutum rougher, punctured. Antennæ 11-jointed, the club large and ovate as in *Polynema*, as long as the funicle whose first joint is longest, subquadrate, the distal four funicle joints more than twice wider than long.

Habitat: Gordonvale (Cairns), Queensland. Jungle, April 5, 1913.

Type: No. *Hg* 3321, Queensland Museum, Brisbane, the female on a tag.

GENUS PACHYTOMOIDES Girault.

Differs from *Podagrion* Spinola in lacking a ring-joint in the antennæ; the sculpture of the scutellum at apex is abruptly smoother indicating the cross-suture.

1. **PACHYTOMOIDES MIRUS** Girault. Female. Genotype.

Length, 5 mm., excluding the long, slender and curved ovipositor which is fully 7 mm. long. (*See* the third species.)

Bright metallic green, the propodeum and head metallic bluish, the abdomen red except broadly at base above, the fore and intermediate legs brown including their coxæ, the posterior legs reddish brown at the knees, tarsi, tips of tibiæ, proximal two thirds of the swollen femur and distal third of the long subtriquetrous posterior coxa. Ovipositor very thin, fuscous, its valves black. Fore wings irregularly, lightly stained with brownish, the venation black. Eyes red, the ocelli darker red. Antennæ with the scape and pedicel brown, the remaining joints black. Head and thorax very finely reticulate punctate; abdomen tapering at base but not petiolate, strongly compressed. Ocelli distant from the eyes. Propodeum with larger reticulate punctures, its dorsum rounded, without a median carina. Postmarginal vein twice the length of the stigmal, the marginal very long, not much shorter than the submarginal. Distal fourth of scutellum and the mesopostscutellum smooth but finely closely polygonally reticulated. Proximal abdominal segments with very minute pin-punctures, the distal segments glabrous. Posterior coxa sculptured like the postscutellum, the posterior femur beneath armed with nine large, black, unequal teeth, the first (proximal), eighth and ninth largest, the latter stoutest, triangular, tooth 8 longest, columnar, the seventh next to the shortest, paired, that is a bidentate erect plate, the two dentations here counted as separate teeth though united at base, the two teeth equal; teeth 4 and 5 unequal, also more or less united at base, tooth 2 shortest, obtuse, nipple-like.

Antennæ inserted in the middle of the face, 13-jointed, the funicle filiform but its distal joint widening somewhat, becoming wider than long; scape simple, not as long as the club; pedicel somewhat longer than the first funicle joint; joint 2 of funicle longest, joint 3 next, the distal joint shortest; joint 5 subequal in length to the pedicel, the following funicle joints all shorter; club joints nearly equal, the distal one slightly the longest. Propodeum at apex carinated (a semicircle). Stigmal vein with a very short neck. Joints 2 and 3 of tarsi slender.

Habitat: Brisbane, Queensland. May 20, 1911 (H. Hacker).

Type: No. *Hg* 1191, Queensland Museum, Brisbane, the female minutien-mounted, the antennæ and a hind femur on a slide.

2. PACHYTOMOIDES QUEENSLANDICA Girault. Female.

Length, 4 mm., not including the ovipositor which is fully as long as the body.

At once differing from *mirus* in bearing eight teeth along the posterior femur of which the first, fourth, sixth and seventh are largest, the eighth with a very broad base, its distal side a long incline; teeth 2 and 5 subequal, 3 a little shorter, all distinct. Antennæ yellow-brown, the club dark. Propodeum concolorous; first two legs wholly honey yellow, the posterior one purplish black, except tarsi, tips of tibiæ and the knees. Abdomen honey yellow except above just at base and along distal half; thus in general encircled by a broad band of yellow; valves of ovipositor black. Propodeum umbilico-rugoso-punctate, without carinæ dorsad, much rougher than the dense, fine punctation of the rest of the thorax. Teeth of mandibles fine, three of them distinct. Distal three funicle joints wider than long, the club as long as the funicle.

Habitat: Gordonvale (Cairns), Queensland. Jungle, May 8, 1913.

Type: No. *Hy 3322*, Queensland Museum, Brisbane, the female on a tag and a slide with the head and a hind femur.

3. PACHYTOMOIDES FRATER new species.

Female:—Length, 3.85 mm., excluding the ovipositor which is a little longer than the body.

Very similar to *mirus* but at once distinguished from that species by bearing on the abdomen at apex of proximal two thirds a distinct black, rather narrow encircling band (except across venter; in *mirus* there is a large crescent-shaped spot of black in the lateral aspect at about the same distance from base). Also, the caudal femur bears but seven teeth, the first, sixth and seventh largest, 6 longest, columnar, 3 smallest, 2 next so, none paired. The distal two funicle joints are wider than long, joints 2 and 3 longest, subequal, 4 only a little shorter than 3; flagellum brown suffused with dusky, the club jet black. Otherwise about as in *mirus*. Compared with type of latter.

From one female caught in forest on sand-ridges near coast, May 8, 1913 (A. P. Dodd).

Habitat: Chindera (Tweed River), New South Wales.

Type: No. *Hy 3323*, Queensland Museum, Brisbane, the specimen on a tag; flagellum and a caudal femur on a slide.

MEGASTIGMINÆ.

There is an undescribed genus in this group like *Megastigmus* but the male antennæ are very slender and with whorls of hairs. I was unable to obtain the female with certainty. Most of the genera bear, perhaps, two ring-joints, the first very short.

GENUS NEOMEGASTIGMUS Girault.

This genus is like *Spilomegastigmus* Cameron but the mandibles tridentate, the antennæ 13-jointed, the club distinctly 3-jointed; one large ring-joint. Fore wings usually with a black spot appended from the stigmal vein. Scutellum simple, uniformly sculptured.

1. NEOMEGASTIGMUS LIVIDUS new species. Female. Genotype.

Length, 2 mm., excluding ovipositor which is extruded for a length somewhat over that of the abdomen.

Black-blue, the legs (except the concolorous coxæ) and the tegulæ yellowish white, the antennæ similarly colored. Wings hyaline, the stigma darker than the spot beneath it. Thorax scaly but the lines more or less transverse. Valves of ovipositor brown-black. Propodeum rugulose, without a median carina. Posterior coxæ sculptured like the thorax,

bearing also sparse, long, yellow-white hairs, the upper sides of the propodeum also thus clothed. Scape subobovate, the pedicel longer than any of the funicle joints of which the first three are longest and subequal, the distal one plainly wider than long.

Habitat: Gordonvale (Cairns), Queensland. Associated with a cecidomyiid gall on *Careya australis*.

Type: No. Hy 3324, Queensland Museum, Brisbane, the female on a tag.

2. NEOMEGASTIGMUS COLLARIS new species. Female.

Length, 1.35 mm., excluding the ovipositor which is extruded for a length about equal to that of the abdomen.

Like *lividus* but the ovipositor is extruded for a shorter distance and the pronotum is pale orange; also the legs are whiter. Head dark orange yellow. Abdomen subsessile.

Habitat: Thursday Island, Torres Strait. Forest in March.

Type: No. Hy 3325, Queensland Museum, Brisbane, the female on a tag and a slide.

3. NEOMEGASTIGMUS PETIOLATUS new species. Female.

Length, 1.95 mm., excluding the black extruded valves of the ovipositor which are about two thirds the length of the abdomen.

Orange yellow, the abdomen (its short, distinct petiole pallid), propodeum and distal third of scutellum lightly purplish black. Fuscous spot from stigma large, nearly a band across the wing. Caudal margins of segments 2-4 of abdomen incised at meson, the incision large, wide on segment 2, minute on segment 4. Cephalic legs (femur and distad) pale, the others concolorous with the abdomen but all tarsi pale, the antennæ straw yellow. Funicle joints all shorter than the pedicel. Thorax densely reticulated and transversely lineolated.

Habitat: Mackay, Queensland. Open fields in October.

Type: No. Hy 3326, Queensland Museum, Brisbane, the female on a tag.

A second female from the foliage of *Tristania*, September 3, 1913 at Gordonvale (Cairns), Queensland (E. J. Girault).

4. NEOMEGASTIGMUS FILIUS new species. Female.

Length, 2.50 mm., excluding extruded part of ovipositor which is a little longer than the abdomen.

Like *collaris* but much more robust, the ovipositor longer than the abdomen and the legs differ in that the coxæ and the hind femora are brown. The nearly black dash from the stigma is longer and somewhat curved. The proximal funicle joint in this species is plainly longer than wide, 1-3 subequal, the others shortening somewhat, the distal funicle joint a little longer than wide. Pedicel slightly longer than the distal funicle joint. In *collaris* all the distal funicle joints are subquadrate, barely longer than wide and distinctly shorter than the pedicel, the distal funicle joint a little wider than long. The caudal margin of the pronotum in both species is concolorous with the scutum.

Habitat: Gordonvale (Cairns), Queensland. December 19, 1911.

Type: No. Hy 3327, Queensland Museum, Brisbane, the female on a tag, the head with the slide type of *collaris*.

5. NEOMEGASTIGMUS SALTENSIS new species. Female.

Length, 1.50 mm., excluding ovipositor.

Like *lividus* Girault but the femora also concolorous and the extruded portion of the valves of the ovipositor are slightly shorter than the abdomen. Funicle joints 1-4 subequal, each barely longer than wide, the remaining widening and shortening a little in succession, joint 7 a little wider than long. Scutellum simple as with the other species. Propodeum not plainly seen. Pedicel distinctly longer than any of the funicle joints.

From one female captured in a forest pocket, September 12, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 3328*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

6. NEOMEGASTIGMUS VARIUS new species.

Female:—Length, 1.60 mm., excluding ovipositor which is extruded for a length equal to a little over half the abdomen.

Like *petiolatus* but the propodeum, head and first pair of legs are orange yellow, the cephalic tibiae and all tarsi white. Thorax wholly orange yellow. Scape pallid. Pedicel longer than any funicle joint. Funicle 1 quadrate, smallest, 3 longest, somewhat longer than wide, 7 somewhat wider than long. Caudal margin of segment 2 of abdomen naked and with a very narrow incision at meson, the others entire. Propodeum about as in *petiolatus* and *rufithorax*. Fore wing marked as in *rufithorax* but the marking not as large and not so deep in color.

From one female caught in forest, December 1, 1913.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. *Hy 3329*, Queensland Museum, Brisbane, the specimen on a tag, the head on a slide.

7. NEOMEGASTIGMUS RUFITHORAX new species.

A little more robust than *petiolatus*; distal half of scutellum, distal half of axillæ and the cephalic legs (except the white tibiae) purplish black and sides and venter of thorax. Caudal edge of segment 3 of abdomen naked, not armed with minute setæ as in *petiolatus*. Segment 4 of abdomen not incised. Occiput and venter black. In both species the propodeum bears numerous rugæ from cephalic margin and there are no distinct median nor lateral carinæ but a half complete lateral carina from caudal apex. A small, dark spot between caudal margin of fore wing and the caudal end of the stigmal stripe.

From one female caught in forest on sand ridges near coast, May 13, 1914 (A. P. Dodd).

Habitat: Chindera (Tweed River), New South Wales.

Type: No. *Hy 3330*, Queensland Museum, Brisbane, the specimen on a tag.

The black color in this species is very deep.

A. NEOMEGASTIGMUS RUFITHORAX NELSONENSIS new variety.

The same but scutellum wholly orange yellow, the caudal edge of segment 2 of abdomen is armed with short setæ, the body a little less robust.

From one female caught in forest.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. *Hy 3331*, Queensland Museum, Brisbane, the specimen on a tag with type of the type form.

8. NEOMEGASTIGMUS HYALINUS new species.

Female:—Length, 1.75 mm., excluding the ovipositor which is extruded for a length nearly equal to that of the abdomen.

Metallic blue green, the thorax transversely lined, the wings hyaline; knees, tibiae and tarsi pale lemon yellow; abdomen black blue except at base. Antennæ black blue, the pedicel and funicle 1 subequal, distinctly longer than wide; funicles 2 and 3 subequal, a little longer than wide; funicles 6-7 subequal, a little wider than long. Propodeum and head densely scaly, the former noncarinate. Abdomen delicately scaly except segment 2 which is incised caudad at meson (segment 3 slightly so). Scutellum densely polygonally scaly. Otherwise as in the other species.

From one female, May 12, 1914 caught in forest (A. P. Dodd).

Habitat: Chindera, New South Wales.

Type: No. *Hy 3332*, Queensland Museum, Brisbane, the specimen on a tag.

9. NEOMEGASTIGMUS AURITIBIÆ new species.

Female.—Length, 2.30 mm., excluding the ovipositor which is extruded for a length equal to three fourths that of the abdomen.

Agrees with the description of *hyalinus* but the scape is reddish brown at ventral half and funicle 1 is distinctly longer than the short pedicel which is no longer than wide; funicle 1 distinctly longer than wide, the following joints a little longer than wide, shortening slightly in succession distad. Propodeum dorso-laterad, about ventral half of the face, sides of abdomen (distal half) and upper hind coxæ, with rather coarse silvery pubescence.

From one female caught in forest, September 2, 1914.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 3333*, Queensland Museum, Brisbane, the specimen in alcohol with type *Atoposoma unguittatipes* Girault.

TABLE TO THE AUSTRALIAN SPECIES OF *NEOMEGASTIGMUS* GIRAULT.

Fore wings without a substigmal spot	The species <i>hyalinus</i> and <i>auritibiæ</i> .
Fore wings with a substigmal spot.		
Wholly black-blue.		
Legs (except coxæ) and antennæ white or nearly (caudal femur a little dusky)	<i>lividus</i> Girault.*
The same but femora and coxæ concolorous	<i>saltensis</i> Girault.
Black-blue, the pronotum (except caudal margin) and head orange-yellow.		
Funicle joints subquadrate.		
Ovipositor extruded for a length equal to that of abdomen; legs pale	<i>collaris</i> Girault.
Ovipositor extruded for a length longer than that of the abdomen; coxæ and the hind femora brown	<i>filius</i> Girault.
Orange-yellow.		
Abdomen, propodeum and distal third of scutellum purplish black; hind legs blackish	<i>pectiolatus</i> Girault; see <i>varius</i> Girault and <i>rufithorax</i> Girault.

GENUS MEGASTIGMUS Dalman.

Synonym: *Xanthosomoides* Girault.

Subgenera: *Megastigmus* Dalman, *Bootanomyia* novum, *Paramegastigmus* novum and *Epimegastigmus* novum.

SUBGENUS MEGASTIGMUS Dalman.

1. MEGASTIGMUS DRANCES Walker. Female.

Walker, 1839, p. 5.

Sp. 1. Meg. Drances. Fem. *Fulvus nigro-varius, antennae nigrae basi fulvae, oviductus vaginae abdomine multo longiores, pedes fulvi, alae limpidae.*

Fulvus, sub-nitens,seite punctatus, fere glaber: capitis vertex niger: os flavum: oculi et ocelli rufi: antennae nigrae; articulus I^{us} fulvus: thorax nigro per medium vittatus; meta-

* *badius* new variety. *Female*.—Length, 1.50 mm., excluding ovipositor. Smaller than the type form and chocolate brown, the legs white except the brown coxæ and the slightly embrowned hind femur (the latter somewhat blackish in the type form). Also, the substigmal spot is distinctly smaller, barely larger than the stigmal knob. Tegulae white. In the type form the substigmal marking is conspicuous and distinctly larger than the stigmal knob.

Rared at Gordonvale, Queensland, with the type form from cecidomyiid galls on tea-tree leaves, September 1, 1912. No type. The galls were pustular, reddish, subsetiform, solitary or in irregular groups on the surface of the foliage.

thorax niger: abdomen laeve nitens: segmenta basi nigra: oviductus fulvus: vaginae nigrae, hirtae, abdomine multo longiores: pedes fulvi; coxae piceae; tarsi apice fusci; metafemora subtus piceo maculata: alae limpidae; squamulae fulvae; nervi fusci, basi pallidiores; stigma piceum, rotundum, sat magnum. (Corp. long. lin. $1\frac{1}{3}$; lin. $2\frac{1}{2}$.)”

Habitat: Hobart, Tasmania.

Type: Probably in the Natural History Museum, London.

2. MEGASTIGMUS BORUS Walker. Female.

Walker, 1839, pp. 5-6.

“ Sp. 2. Meg. Borus. Fem. *Flavus fulvo et piceo varius, antennae piceae basi fulvae, metathorax niger, oviductus vaginae abdomine non longiores, pedes flavi, alae limpidae.*

Flavus, sub-nitens, scite punctatus, fere glaber: caput postice nigrum; vertex fulvus: oculi et ocelli rufi: antennae piceae; articulus 1^{us} fulvus: thoracis segmentorum disci fulvi; suturae piceae: metathorax niger: abdomen laeve, nitens; discus piceus, fulvo-fasciatus: oviductus fulvus; vaginae nigrae, hirtae, abdomine non longiores: pedes flavi; tarsi apice fusci: alae limpidae; squamulae flavae; nervi fusci, basi pallidiores; stigma piceum, rotundum, sat magnum. (Corp. long. lin. $1\frac{1}{3}$; alar. lin. $2\frac{1}{2}$.)”

Habitat: Hobart, Tasmania.

Type: Probably in the Natural History Museum, London.

3. MEGASTIGMUS IAMENUS Walker. Female.

Walker, 1839, p. 6.

“ Sp. 3. Meg. Iamenus. Fem. *Fulvus piceo varius, antennae piceae basi fulvae, oviductus vaginae corporis longitudine, pedes fulvi, alae limpidae.*

Fulvus, subnitens, scite punctatus, fere glaber: oculi et ocelli rufi: antennae piceae, basi fulvae: thoracis segmentorum suturae piceae: abdominis discus piceo fasciatus: oviductus fulvus; vaginae nigrae, hirtae, corporis longitudine: pedes fulvi; tarsi apice fusci: alae limpidae; squamulae fulvae; nervi fulvi; stigma piceum, rotundum, magnum. (Corp. long. lin. 1; alar. lin. $1\frac{1}{4}$.)”

Habitat: Hobart, Tasmania.

Type: Probably in the Natural History Museum, London.

Ashmead (1900) makes the following statement concerning this species: “ Hab.— Sydney, N.S.W. Of this species Mr. Froggatt has sent one ♀, bred from galls of *Brachyscelis pileata* and 4 ♀ specimens from a globular gall on *Eucalyptus*. The latter are considerably larger than the dimensions of the species as given by Walker but otherwise seem to agree well with his description and with the smaller form bred from *B. pileata*.”

4. MEGASTIGMUS ASTERI Ashmead. Female; male.

Length, 3-4 mm.; ovipositor as long as the body, brownish yellow; smooth and shining except some delicate transverse striae on vertex, mesonotum and within the femoral impression on the mesopleurum; body clothed with some sparse black and white hairs. Metapleura with long white hairs; sutures of scutellum and metathorax, anterior margin of scutum, mesosternum, bands on dorsum of abdomen and ovipositor valves black or brown black. Antennae brown black; scape and pedicel brownish yellow; first five joints of funicle about twice as long as wide; seventh joint very little longer than wide.

The males measure from 1.8 to 2 mm. and are like the females in color but there is a dusky spot on the vertex inclosing the ocelli; the occiput, a band on anterior margin of mesonotum and metathorax black; flagellum light, the funicle joints scarcely one and a half times longer than wide.

Habitat: Sydney, New South Wales. Associated with a dipterous gall on *Aster ramulosus*.

Type: Cat. No. 4878, United States National Museum, Washington, D.C., U.S.A.

5. MEGASTIGMUS BRACHYSCOLIDIS Ashmead. Female; male.

Length, 2 mm. Black or dark brown; ovipositor a little shorter than the body; orbits broadly, lower part of face, pronotum, parapsides and sometimes the scutum, axillæ, a transverse line back of scutellum, mouth parts except teeth of mandibles and legs (except hind coxæ), pale yellowish. Abdomen paler beneath and at apex. Antennæ brown, scape pale beneath, flagellum subclavate, first joint of funicle about one and a half times longer than wide, the following joints gradually shortening, joint 7 a little wider than long. Stigma and venation brown; wings hyaline. Vertex and mesonotum delicately transversely striate, the scutellum and metanotum delicately shagreened.

The male measures 1.80 mm. Black, shining; orbits and face ventrad of antennæ, a transverse band on hind margin of pronotum, parapsides caudad, mesal suture of axillæ, extreme tip of abdomen and the legs (except the hind coxa), yellowish. Antennæ brown, the funicle joints scarcely longer than wide. Wings hyaline, stigma and venation brown-black.

Habitat: Sydney, New South Wales. Associated with *Brachyscelis erista* Olliff.

Type: Cat No. 4879, United States National Museum, Washington, D.C., U.S.A.

6. MEGASTIGMUS SULCICOLLIS Cameron. Female.

Length, 1-2.50 mm.

Yellow; mesonotum, scutellum and abdomen tinged with fulvous, legs paler; flagellum darker, more fulvous, the apices of the joints narrowly black; wings hyaline, venation testaceous, the stigma long-conical. Tips of mandibles and ovipositor valves black. Extruded portion of ovipositor as long as the body. Smooth; thorax finely, closely transversely striated; a narrow, transverse furrow before the middle of pronotum and a shorter, wider, more distinct one at the apex. Thorax (except propodeum) sparsely clothed with longish, black hairs; propodeum more coarsely striated than the thorax. Base of mesonotum, base and sides of scutellum and of propodeum, the sides of the latter more broadly, base of the parapsidal furrows and the depressions at the sides of the mesonotum, black.

Habitat: Richmond, New South Wales. Associated with galls on kurrajong.

Type: Query.

7. MEGASTIGMUS MACULATIPENNIS (Girault). Female. Genotype of **XANTHOSOMOIDES**.

Length, variable but about 2.50 mm. excluding ovipositor, the exerted portion of which is about three fourths the length of the body.

Pale cadmium yellow, the head, pronotum, legs and a transverse spot laterad of the mesopostscutellum (the spot cephalad of the propodeal spiracle) contrasting, lighter lemon-yellow; also more or less, the produced part of the ventral abdomen. Lateral suture of scutellum, the visible (dorsal, lateral) portions of the occiput and the cephalic margin of the propodeum, black. Dorsal aspect of abdomen suffused irregularly with brown. Venation black. Fore wings hyaline, the globe-like stigmal spot black. Discal ciliation normal and dense, the marginal cilia very short. Antennæ yellow suffused with much black. Ovipositor brown, the valves black. Thorax delicately, transversely wrinkled. Funicle 1 widening distad, nearly twice longer than wide at apex. Scape yellow, black above. Lateral ocelli distant from the eye margins. Face subquadrate, wide. Propodeal spiracle elliptical. Funicle joints not much longer than wide, a little longer than the pedicel. Postmarginal vein nearly as long as the marginal. Abdomen sessile. Club 3-jointed. Propodeum noncarinate. Corrected description. Type re-examined.

Habitat: Brisbane, Queensland. Reared from galls.

Type: No. Hy 1192, Queensland Museum, Brisbane, the female on a card.

8. MEGASTIGMUS TASMANIENSIS Girault. Female.

“A Tasmanian species, black with a yellow collar, was labelled ‘Reared from larvae of flies attacking *Helichrysum scorpioides*. R. A. Black.’ They were accidentally destroyed.

However, the collar and the legs (except coxæ) and the lower third of the face, lemon-yellow. Antennæ brownish, the first funicle joint only a third longer than broad."

Type: I. 1257, South Australian Museum, one slide with posterior legs, antennæ and two heads.

9. MEGASTIGMUS LONGICAUDA Girault. Female.

Length, 2.85 mm., excluding ovipositor.

Like *Epimegastigmus fulvipes* but much less robust, the ovipositor greatly lengthened, distinctly much longer than the whole body. The first funicle joint twice longer than broad, subequal to the pedicel, the second somewhat shorter. Pedicel long.

Habitat: Port Lincoln, South Australia.

Type: I. 1258, South Australian Museum.

10. MEGASTIGMUS FUSCICORNIS Girault.

Length, 2.40 mm., exclusive of ovipositor, which is distinctly shorter than the body.

Like *maculatipennis* but the propodeum black, the pedicel of the antenna short and equal to the first funicle joint, which is about a fourth longer than wide at apex, subequal to funicle 2; also the ovipositor is shorter.

Habitat: Burnie, Tasmania.

Type: I. 1259, South Australian Museum.

11. MEGASTIGMUS SPECIOSUS new species. Female.

Length, 2 mm., excluding the ovipositor which is extruded for a length somewhat longer than that of the abdomen.

Variiegated; valves of ovipositor black. Head all black except the orange vertex and upper half of face; pronotum lemon-yellow; mesonotum orange-yellow; sides and venter of thorax, the whole of the propodeum, cephalic margin of scutum and three dorsal, rather broad cross-stripes on abdomen (not including a little black across base) black, the abdominal stripes central, occupying the surface except at either end. Legs pale yellow, the wings hyaline, the antennæ missing. Mandibles tridentate, the scutellum with a cross-furrow. Proximal stripe of abdomen longest, closer to base than the distal stripe is to apex. Otherwise yellow.

Habitat: Gordonvale (Cairns), Queensland. Jungle, July 24, 1913 (A. P. Dodd).

Type: No. Hy 3335, Queensland Museum, Brisbane, the above specimen on a tag.

12. MEGASTIGMUS FLAVIVARIEGATUS new species. Female.

Length, 1.35 mm., excluding ovipositor which is exerted for a length somewhat over that of the abdomen.

Pale lemon-yellow, the vertex suffused with orange, the mesonotum deep orange; a little less than the basal half of the abdomen washed with dusky. Wings hyaline. Thorax along side of each axilla and the scutellum deep black. Cephalic and caudal margins of propodeum black. Antennæ with the pedicel distinctly longer than any of the funicle joints, all of the latter a little wider than long and subequal in length, the distal joints a little wider. Prepectus and the sutures of lateral thorax black.

Described from a female captured by sweeping in the jungle, June 7, 1913 (A. P. Dodd).

Habitat: Gordonvale (Cairns), Queensland.

Type: No. Hy 3336, Queensland Museum, Brisbane, the female on a tag and a slide with the head.

13. MEGASTIGMUS EUCALYPTI new species.

Female:—Length, 2.25 mm., exclusive of ovipositor which is extruded for a length somewhat over half that of the body.

Very similar to *Epimegastigmus fulvipes* but much less robust and there is a transverse orange-yellow spot on each side of meson of propodeum near cephalic margin; the pronotum,

moreover, is lemon-yellow, the dorsum of abdomen bears several more or less suffused black stripes on proximal half. Sutures of mesonotum narrowly black. Scutellum without longitudinal grooves or these are very faint. Mesothoracic venter black. Flagellum black; funicle 1 a little shorter than the pedicel, 1 somewhat longer than wide. Distal funicle joint a little wider than long. Sometimes, the propodeum is wholly black. Head lemon-yellow.

From three females reared from galls on young *Eucalyptus*, November 21, 1910 (F. P. Spry) and labelled Nos. 1 and 2. From the National Museum at Melbourne.

Habitat: Melbourne, Victoria.

Types: In the National Museum, Melbourne, Victoria. Three females on a card.

14. MEGASTIGMUS FIELDINGI new species.

Female:—Length, 1.46 mm., excluding the ovipositor which is three fourths the length of the abdomen.

Runs to *asteri* Ashmead but the ovipositor is somewhat shorter, funicle 1 is quadrate or only slightly longer than wide, longest, while the general body color is orange yellow with the head, pronotum, margins of scutum and scutellum lemon yellow. Sutures of scutellum, cephalic margin of scutum and of propodeum (both narrowly) and the valves of the ovipositor, black; also a spot in the suture just cephalad of hind coxa. Four or five dusky cross-stripes dorsad on abdomen. Antennæ yellow.

What appears to be the male is much more heavily marked with black but with the same pattern except that the parapsidal furrows are also black.

From many females reared from miscellaneous galls, forest, Gordonvale, October 15, 1913.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. Hy 3337, Queensland Museum, Brisbane, two females on a tag.

15. MEGASTIGMUS ADELAIIDENSIS new species.

Female:—Like *maculatipennis* Girault but the propodeum wholly concolorous, the abdomen with about two black cross-stripes.

Habitat: Adelaide, South Australia. Reared from a gall.

Type: Lost.

16. MEGASTIGMUS MELLEUS new species.

Compared with types of *maculatipennis* and *flavivariegatus*.

Female:—Length, 1.65 mm., excluding the ovipositor which is extruded for a length equal to that of the abdomen.

Runs to *maculatipennis* Girault but the body is smaller, the abdomen more rounded, the extruded part of valves of ovipositor much shorter, the body is uniformly honey yellow only the scutum and scutellum slightly tinged with orange. The abdomen is marked with four distinct black dashes across and along meson and the proximal two thirds of abdomen dorsad and the extruded valves of ovipositor are black. The fore wing is characterized by bearing a subfuscous, round spot of rather small size from apex of the black stigma. Scape and pedicel orange, rest of antennæ dusky yellow. Funicle joints shorter than the pedicel, 3 or 4 longest, each a little longer than wide and nearly as long as the pedicel, the others barely longer than wide. Scape obclavate. Scutellum with a line of three long setæ along each side.

From one female caught in jungle, July 11, 1914.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. Hy 3338, Queensland Museum, Brisbane, the specimen on a tag with type of *flavivariegatus* Girault.

17. MEGASTIGMUS PERGRACILIS new species.

Female:—Length, about 1.90 mm., excluding the ovipositor which is extruded for a length nearly equal to that of the abdomen.

Pale greenish yellow, the wings hyaline, the following black markings: Suture between pronotum and scutum, that between scutum and scutellum, that between scutellum and axillæ.

that between postscutellum and propodeum, a small area just mesad of wing insertions, cephalic margin of propodeum rather narrowly but more broadly than the suture just preceding it; apex of propodeum dorsad centrally; a narrow line down propodeum in the usual position of a lateral carina and a still narrower one farther laterad (dorso-lateral); neck of pronotum at apex above; a spot just dorso-cephalad of caudal coxa and a dot just dorsad of middle coxa; and four rather stout stripes across dorsum of abdomen, all confluent along the meson, a fifth stripe represented by a mesal round area just distad of the fourth; and valves of ovipositor. Funicle joints very gradually shortening distad, the first a little the longest, slightly or barely longer than wide, subequal to the pedicel. Funicle and club dusky yellow. Scutum, parapsides, axillæ and scutellum suffused with orange.

From one female caught in forest, September 28, 1914.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy* 3339, Queensland Museum, Brisbane, the specimen in alcohol with type *Atoposoma unguatipes* Girault.

18. MEGASTIGMUS QUADRIFASCIATIVENTRIS new species. Female.

Length, 1.70 mm., excluding ovipositor which is somewhat longer than the abdomen. Greenish yellow, the mesonotum orange yellow. The following black markings: A loop over center of occiput, cephalic margin of scutum, meson of propodeum very broadly and a very narrow line along in the position of a lateral carina, suture between pro- and mesopleurum and four distinct stripes across the abdomen, the first two rather close together at proximal fourth, 3 a little proximad of middle, 4 somewhat distad of middle. Flagellum dusky, the pedicel longer than any of the funicle joints of which the longest (joint 1) is subquadrate. Wings hyaline.

Described from one female captured with *pergracilis*.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy* 3340, Queensland Museum, Brisbane, the female in alcohol with type *pergracilis*.

TABLE TO THE AUSTRALIAN SPECIES OF *MEGASTIGMUS* DALMAN AND OF *EPIMEGASTIGMUS* GIRAULT.*

FEMALES.

(*Ovipositor* means extruded portion.)

I. Black or brown-black species.

Ovipositor a little shorter than the body; orbits broadly, lower face, pronotum, parapsides, scutum (sometimes), axillæ, a transverse line back of scutellum, mouth parts and legs (except hind coxæ), pale yellowish. Funicle 1 about one and a half times longer than its width *brachyscelidis* Ashmead.

Black; pronotum, lower face and legs except coxæ, lemon yellow; antennæ brownish; funicle

1 only a third longer than wide *tasmaniensis* Girault.

II. Yellow species.

1. Ovipositor distinctly longer than the body.

Like *fulvipes* but less robust; funicle 1 twice longer than wide, subequal to the rather long pedicel *longicauda* Girault.

2. Ovipositor no longer than the body usually shorter.

Head yellow.

Propodeum wholly black or nearly so.

Deep orange yellow; pronotum with the caudal margin narrowly lemon yellow followed by a narrow stripe of jet black across cephalic margin of scutum; meson of

* Excluding two species of the latter which see.

thoracic venter black; face lemon yellow. Funicle 1 more than twice longer than wide. Abdomen not at all or but obscurely marked. Robust. Sutures of mesonotum not black. Scutellum with a narrow median and lateral longitudinal groove. Ovipositor distinctly longer than the abdomen

(*Epimegastigmus*) *fulvipes* Girault.

The same but much less robust and there is a transverse yellow spot on each side of meson of propodeum cephalad; pronotum lemon yellow; dorsum of abdomen with several suffused blackish stripes across proximal half; scutellum without noticeable longitudinal grooves; sutures of mesonotum narrowly black. Funicle 1 somewhat longer than wide. Flagellum black *eucalypti* Girault.

Yellow; occiput, antennæ except scape, sutures of thorax and disk of abdomen black or piceous. Vertex and disk of thoracic segments orange yellow (fulvous); ovipositor no longer than the abdomen *torus* Walker.

Orange yellow (fulvous); vertex, flagellum, stripes on middle of thorax and proximal abdomen black or piceous. Ovipositor much longer than the abdomen. Mouth yellow. Middle femora feebly spotted with black *dranceus* Walker.

Orange yellow, the head lemon yellow; caudal margin of pronotum narrowly lemon yellow. Pedicel subequal to funicle 1, the latter only about a fourth longer than wide at apex. Ovipositor distinctly shorter than the body. Like *maculatipennis*

fuscicornis Girault.

Propodeum mostly concolorous.

Sutures of thoracic dorsum black.

Orange yellow. Antennæ piceous; scape orange yellow; abdomen with black cross-stripes. Ovipositor as long as the body. All thoracic sutures black

pergracilis Girault; see *jamenus* Walker, *fieldingi* Girault.

Brownish yellow; sutures of scutellum and propodeum, cephalic margin of scutum, mesosternum and cross-stripes on dorsum of abdomen, black. Funicle and club brownish yellow. Funicles 1-5 about twice as long as wide. Ovipositor as long as the body *asteri* Ashmead.

Yellow; "mesonotum", scutellum and abdomen tinged with fulvous. "Base" of "mesonotum", base and sides of scutellum and propodeum, the sides of the latter more broadly, "base" of the parapsidal furrows and the depressions at the sides of the "mesonotum", black. Ovipositor as long as the body

sulcicollis Cameron.

Sutures of thoracic dorsum not black; orange yellow.

Propodeum with a black stripe across cephalic margin which continues up to the tegula on each side of scutellum; pronotum paler, its caudal margin narrowly lemon yellow; abdomen with about three cross-stripes of black, more or less suffused. Head lemon yellow. Ovipositor distinctly longer than the abdomen

maculatipennis Girault.

See *flavivariegatus* Girault, *adelaidensis* Girault, *melleus* Girault.

quadrifasciiventris Girault.

Orange yellow, immaculate; scutellum with a median grooved line. Funicle joints longer than the pedicel, 1 over twice longer than wide. Ovipositor valves black. Robust (*Epimegastigmus*) *grotiusi* Girault.

Head partly black.

Orange yellow; pronotum and legs lemon yellow; valves of ovipositor, head except vertex and dorsal half of face, sides and venter of thorax, propodeum, cephalic margin of scutum and three dorsal, rather broad cross-stripes on abdomen, black. Ovipositor somewhat longer than the abdomen *speciosus* Girault.

BOOTANOMYIA new subgenus.

Like *Megastigmus* Dalman but the body partly or wholly metallic, frequently with thimble punctures.

1. BOOTANOMYIA SMARAGDUS new species. Female. Genotype.

Length, 1.50 mm., excluding ovipositor which is extruded for a length distinctly longer than that of the abdomen. Similar to *viridiscutellum* Girault but the scutum is almost wholly metallic green, the extreme cephalo-lateral angle showing a trace of yellow (in the species named, the cephalo-lateral angles of scutum are yellow, the green on scutum rectangular, longer than wide, its margins nearly straight cephalo-caudad); the thimble punctures on scutum are more numerous and the abdomen above wholly brownish. The thorax in both species is finely, transversely lineolated; the scutellum distad of the transverse line is glabrous in both and the ocellar area is metallic green with a cephalic projection from each side, forming a crude U on the vertex. Scape and pedicel in both colored above. The antennæ are alike but *smaragdus* apparently bears two ring-joints, while *viridiscutellum* bears but one. Compared with type of the named species.

Habitat: Roma, Queensland. October 6, 1911.

Type: No. *Hy 3341*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

2. BOOTANOMYIA PAX new species. Female.

Length, 1.33 mm., excluding ovipositor which is a little longer than the abdomen.

Dark metallic coppery green, the wings hyaline, the abdomen dark brown, the valves of the ovipositor nearly black; cephalic and intermediate legs pale yellow; the caudal coxæ and the femora concolorous, the former diluted with brownish. Scutellum glabrous caudad of the transverse suture. Antennæ with the pedicel longer than any of the funicle joints, dusky; first two funicle joints subequal, the distal three each a little wider than long. Thorax transversely lineolated, impunctate or nearly.

Habitat: Gordonvale (Cairns), Queensland. Forest (1,500 feet), May 26, 1912.

Type: No. *Hy 3342*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

3. BOOTANOMYIA VIRIDISCUTELLUM new species. Female.

Length, 1.65 mm., excluding ovipositor whose exerted portion is slightly longer than the abdomen.

Orange yellow, the pronotum and legs lemon yellow, the wings hyaline. Meson of pronotum triangularly (apex caudad), scutum, scutellum and propodeum bright metallic green, the abdomen at base above with two short, dusky greenish, cross-stripes. Scutum with sparse thimble punctures. Vertex with U-shaped green marking, the arms pointing cephalad. Thorax finely, transversely lineolated, the scutellum distad of the transverse line, polished.

Habitat: Gordonvale (Cairns), Queensland. Forest, August 9, 1912.

Type: No. *Hy 3343*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

4. BOOTANOMYIA PERGRATUS new species. Female.

Length, 1.80 mm., excluding ovipositor which is about as long as the abdomen.

Like *pax* but all the legs concolorous, the thorax with metallic green and purple reflections, the abdomen as dark as the thorax and the antennæ concolorous and with the first two funicle joints a little longer than the pedicel. Moreover, distad of the transverse suture, the scutellum is not glabrous but finely longitudinally striate like the rest of the sclerite. Antennæ 13-jointed, the club 3-jointed, one ring-joint. Pronotum transversely striate, scutum variously striate.

Habitat: Gordonvale (Cairns), Queensland. Forest, August 2, 1913 (A. P. Dodd).

Type: No. *Hy 3344*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

5. BOOTANOMYIA LONGIFASCIATA new species.

Female:—Length, 1.36 mm., excluding ovipositor which is extruded for a length slightly longer than that of the abdomen.

Pale lemon yellow, the wings hyaline; a rather narrow metallic green line down thorax from neck to cross-suture on scutellum caudad of which it enlarges and becomes subtriangular; propodeum with a large triangular metallic green area centrally, the base against its cephalic margin. Funicle 1 somewhat longer than wide, somewhat shorter than the pedicel; distal two funicle joints distinctly wider than long; club distinctly jointed. Ocelli in a transverse metallic area. Abdomen with two short, metallic green cross-stripes at proximal half, the first somewhat prolonged at its caudal meson. Thorax transversely wrinkled, the scutellum caudad of the transverse suture polished. The thoracic median stripe is a little narrower on the scutellum cephalad of suture than on the scutum. It runs to apex of scutellum.

From one female captured by sweeping in forest, August 28, 1913.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. Hy 3345, Queensland Museum, Brisbane, the specimen on a tag, the head on a slide.

6. BOOTANOMYIA ASHMEADI new species.

Female:—Length, 1.25 mm., excluding ovipositor which is extruded for a length equal to that of the abdomen.

Runs to *longifasciata* but somewhat smaller, the color darker yellow and differing principally in having the metallic green line down meson of thorax darker and broader, less uniform; in *longifasciata* this line is narrower on the scutellum (cephalad of cross-suture) than on scutum but its width is uniform within the bounds of each sclerite; but in this new species, it distinctly widens caudad both on scutum and scutellum; on the latter its broadening thus leaves only the lateral margins of that region concolorous with the body; its (the line's) broadening on the scutum makes that region entirely metallic green across the caudal part. In *longifasciata* the scutellum distad of the cross-suture is not wholly green, only broadly so along meson, in this species all that part of the scutellum is metallic green. The abdomen bears at least two cross-stripes but may be one or two more than that. Funicle 1 a little wider than long, distinctly shorter than the usual pedicel, the others gradually shortening and widening distad. Antennæ pale yellow.

From one female caught in forest, December 23, 1912.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. Hy 3346, Queensland Museum, Brisbane, the specimen on a tag.

Dedicated to William Harris Ashmead.

7. BOOTANOMYIA AEREA new species.

Female:—The same as *pax* but all coxæ metallic green, the first two pairs of femora dusky, the last pair black and the hind tibia is black just below knees; the abdomen is black. In *pax*, the propodeum is brownish, metallic green in this species (also here the row of oval foveæ along cephalic margin is deeper; both species bear a pair of converging median carinæ which curve off cephalad to form the caudal boundary of the line of foveæ). Abdomen glabrous. Funicles 1-2 quadrate, much shorter than the pedicel.

A second specimen had the propodeum on each side of median carina finely scaly, the body more robust and the abdomen humped or at the highest dorso-proximal part distinctly elevated triangularly. The specimen probably represents another species.

From two females reared from galls "Gall No. 28, May, 1914, H. Hacker."

Habitat: Brisbane, Queensland.

Type: No. Hy 3347, Queensland Museum, Brisbane, one female on a tag, the body of the first and its head on a slide.

8. **BOOTANOMYIA SANGUINIVENTRIS** new species.

Female:—Length, 3.30 mm. excluding the ovipositor which is extruded for a length equal to that of the abdomen.

Dark æneous green, the abdomen immaculate, blood red, the head golden yellow except the center of vertex which is æneous nearly to the eyes on each side. Legs honey yellow; antennæ concolorous with the head, the pedicel and funicle dusky; scape triquetrous (prism-shaped, the three corners acute, the sides flat), reaching to the ocelli; pedicel subequal to funicle 1 which is a little longer than wide; joints 2 and 3 of funicle a little longer than 1, longest; distal funicle joint (7) a little wider than long; one ring-joint distinct, other not seen. Thorax rather coarsely transversely lineolated; scutellum glabrous distad of the cross-suture; one or two thimble punctures on caudal part of scutum. Thorax with soft whitish pubescence. Valves of ovipositor black; wings hyaline. Valves of ovipositor and hind tibiæ hispid.

From one female labelled "No. 38," captured in jungle, October 10, 1913, G. F. Hill.

Habitat: Port Darwin, Northern Territory.

Type: No. *Hy 3348*, Queensland Museum, Brisbane, the specimen on a tag, the head on a slide.

TABLE TO THE AUSTRALIAN SPECIES OF *BOOTANOMYIA* GIRAULT.

Wholly metallic.

Dark coppery green, the cephalic and intermediate legs pale yellow; pedicel longer than any of the funicle joints, the first two of the latter subequal. Scutellum distad of transverse suture, glabrous *pax* Girault; see *aerea* Girault.

The same but with greenish and purple reflections, the legs concolorous, the pedicel a little shorter than funicle 1; scutellum distad of the transverse suture sculptured as densely as the rest of the sclerite *pergratus* Girault.

Partly metallic; yellow.

Scutum with obvious scattered thimble punctures; scutellum distad of suture glabrous.

Scutellum bright metallic green.

Thimble punctures rather numerous; metallic green of scutum without straight lateral margins, broader cephalad; abdomen dusky above *smaragdus* Girault.

Thimble punctures few; metallic green of scutum with straight lateral margins leaving more of the cephalo-lateral angle yellow. Abdomen with two metallic green cross-stripes *viridiscutellum* Girault.

Scutum without obvious thimble punctures.

Thorax with a bright metallic green median stripe from neck to abdomen, this stripe dilating on the scutellum distad of the suture and on propodeum; abdomen with two green cross-stripes on proximal half. Scutellum polished distad of suture

longifasciata Girault; see *ashmeadi* Girault, *sanguiniventris* Girault.

PARAMEGASTIGMUS new subgenus.

Female:—Differs from *Megastigmus* Dalman in having the abdomen shortly petiolate and the club subsolid, the sutures nearly obsolete.

Type: *Spilomegastigmus flavus* Girault.

1. **PARAMEGASTIGMUS FLAVUS** (Girault). Female. Genotype.

Spilomegastigmus flavus Girault.

Length, 2 mm. excluding ovipositor which is slightly longer than the abdomen, the valves black.

Wings hyaline excepting the stigma; abdomen with a distinct petiole, which, however, is not very much longer than wide. Honey yellow, the abdomen with about four transverse

short stripes of black; legs and scape pale yellow, the flagellum dusky. Mesoscutum and scutellum transversely reticulated in polygons, the latter with a cross-furrow. Mandibles tridentate. Antennæ slender, 11-jointed, the club solid, one ring-joint; all funicle joints longer than wide, the first three subequal, longest, much longer than the pedicel. Head smooth. Type re-examined.

Habitat: Gordonvale (Cairns), Queensland. Forest.

Type: No. *Hy* 3349, Queensland Museum, Brisbane.

2. PARAMEGASTIGMUS IMMACULATICORPUS new species.

Female:—The same as the genotype but immaculate, somewhat more robust and the proximal two-thirds of ovipositor valves are brown, the rest black. Propodeum in both species with several cross-carinae. Legs whitish in both species. Funicle 7 somewhat longer than wide.

From one female taken in forest, November 30, 1913.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. *Hy* 3350, Queensland Museum, Brisbane, the female on a tag.

EPIMEGASTIGMUS new subgenus.

Female:—Differs from *Megastigmus* in bearing a median and usually a lateral grooved line on the scutellum all more or less abbreviated caudad. Type, the first of the following species.

1. EPIMEGASTIGMUS FULVIPES (Girault). Female. Genotype.

Xanthosomoides fulvipes Girault.

Length, 4.20 mm., excluding the ovipositor, the latter exerted for a length nearly equal to that of the body.

Similar to *Megastigmus maculatipennis* but much more robust; also the pronotum is nearly as dark as the scutum, its caudal margin contrasting lemon yellow followed by a narrow black stripe running across the cephalic margin of the scutum; the propodeum is very dark, the meson of thoracic venter is black and in the preventer there is a distinct triangular black marking like the Greek letter *delta* of the capital case. The postmarginal vein is slightly longer than in *maculatipennis*, the apparent petiole of the stigma slightly longer. Vertex dark ochreous, the face lemon yellow. Wings large. Funicle 1 longer, cylindrical, more than twice longer than wide. The abdomen bears three dusky cross-stripes equally distributed.

Habitat: Brisbane, Queensland.

Type: No. *Hy* 3351, Queensland Museum, Brisbane, the female on a card.

2. EPIMEGASTIGMUS GROTIUSI new species. Female.

Length, 3.90 mm., excluding the ovipositor which is three fourths the length of the body or a little over.

Orange yellow, immaculate, the valves of the ovipositor black; wings hyaline. Scutum with a narrow median groove, the propodeum with a median sulcus. Funicle joints all longer than the pedicel, the first over twice longer, the seventh but slightly longer, not much longer than wide; joints 2 and 3 of funicle subequal, only slightly shorter than 1 which is longest. The lateral groove on scutellum is most obscure or else absent.

The male is very much smaller, the abdomen sordid, blackened at base above but otherwise the same.

Habitat: Port Darwin, Northern Territory.

Type: No. *Hy* 3352. Queensland Museum, Brisbane, the female on a tag.

3. EPIMEGASTIGMUS QUINQUEFASCIATUS new species.

Female:—Length, 3 mm., excluding ovipositor whose valves are extruded for a length equal to that of the abdomen.

Honey yellow, the thorax dorsad orange yellow; the wings hyaline, the body marked with black as follows: Antennæ except proximal two thirds of scape, a few lateral and ventral thoracic sutures, lateral margins of propodeum, margins of abdomen from base not quite to apex, extruded valves of ovipositor (jet) and five cross-stripes on abdomen, evenly distributed, the first two narrowly divided along the meson, the last two joined along the meson, the last across just within the ends of the marginal stripes, all moderately broad. Postmarginal vein about as long as the marginal. Only the median groove of scutellum is present. Funicle joints all distinctly longer than wide, 1 somewhat the longest, nearly twice longer than wide, subequal to the pedicel. Dorsal thorax with scattered black hairs.

From one female caught July 11, 1914 in jungle.

Habitat: Gordonvale (Cairns), Queensland.

Type: No. Hy 3353, Queensland Museum, Brisbane, the specimen on a tag.

4. EPIMEGASTIGMUS TRISULCATUS new species.

Female:—Length, 1.70 mm., excluding ovipositor which is extruded for a length somewhat more than that of the abdomen.

Dark red, the propodeum, caudal coxæ, caudal margin of pronotum (the black preceded by a narrow band of lemon yellow), occiput, thorax on each side of scutellum caudad of axillæ and most of mesopleurum, jet black; also ovipositor valves and stigma. Abdomen with two broad dusky cross-stripes, the second at middle, both rather broadly interrupted at meson. Legs brownish yellow. Flagellum black, the funicle joints as long as the pedicel, one and a half times longer than wide, the distal three shortening, a little longer than wide. Scutellum with three grooves, one median, all disappearing before apex. Propodeum with a long narrow median carina, finely rugulose punctate. Postscutellum lemon yellow. Much smaller than *fulvipes*, the hind coxæ black.

From one female labelled "Bred from gall No. 27, May, 1914, H. Hacker."

Habitat: Brisbane, Queensland.

Type: No. Hy 3354, Queensland Museum, Brisbane, the specimen on a tag, the head on a slide.

BOOTANELLEUS new genus.

Like *Bootania* Dalla Torre but the scutum and the rest of the thorax are metallic and with a scaly sculpture, the axillæ advanced. Mandibles tridentate. Abdomen sessile. Antennæ 12-jointed, two ring-joints, the club solid. Propodeum without a median carina. Form small.

1. BOOTANELLEUS VIRIDISCUTELLUM new species. Female. Genotype.

Length, 0.65 mm., excluding ovipositor which is extruded for a length equal to that of the abdomen. Dull honey yellow, the scutum metallic green, the scutellum caudad of the transverse line metallic cyaneus, also the propodeum, the parapsides honey yellow; abdomen dull yellow; legs and antennæ honey yellow, the wings hyaline. Valves of ovipositor black. The seven funicle joints all smaller than the pedicel, the first a little the longest. Axillæ metallic green.

Habitat: Capeville (Pentland), Queensland. Forest, December 27, 1912.

Type: No. Hy.3355, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

ORMYRINÆ.

GENUS ORMYRUS Westwood.

1. ORMYRUS AUSTRALIENSIS new species. Female.

Female:—Length, 1.60 mm. Short and compact.

Dark metallic æneous green, the wings hyaline; tegulæ, tibiæ and tarsi straw yellow, also the knees, the rest of the legs concolorous; segments of abdomen densely scaly, the first row of large punctures double, the second triple, the third or last quadruple. Antennæ 13-jointed with two ring-joints, the club 3-jointed but not very distinctly divided. Mesonotum hairy, with very fine scaly reticulation. Antennæ black, the pedicel longer than any of the transverse funicle joints. Propodeum very short, finely alutaceous, no median carina. Abdomen suffused with brownish.

Habitat: Gordonvale (Cairns), Queensland. Forest, April 3, 1913 (A. P. Dodd).*Type*: No. *Hy 3356*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

2. ORMYRUS BICARINATUS new species. Female.

Length, 1.50 mm.

Differs from *australiensis* in bearing on the short propodeum a pair of median carinæ which are separated and the hind tibiæ are as dark as the femora, the other tibiæ washed more or less with metallic centrally. The general coloration is darker. The pedicel and funicle joints are longer. Both species bear a median carina along the distal half or more of the abdomen and also fine oblique striæ on the propodeum laterad of the meson.

Habitat: Harvey's Creek (Cairns), Queensland. Jungle, November 15, 1913 (A. P. Dodd).*Type*: No. *Hy 3357*, Queensland Museum, Brisbane, the female on a tag, the head on a slide.

3. ORMYRUS CARINATIVENTRIS new species.

Female:—Length, 1.50 mm.

The same as *bicarinatus* but the femora and tibiæ are yellowish brown, the abdomen brown, metallic purple at base with cross-stripes of purple at the cephalic margin of each segment somewhat as in *australiensis*. The scutellum is purplish blue. One hind tibial spur stout and curved as in *bicarinatus*. Scape yellow; funicle 1 shorter than 6, both wider than long.

From one female captured in jungle, March 6, 1914 (A. P. Dodd).

Habitat: Cooktown, Queensland.*Type*: No. *Hy 3358*, Queensland Museum, Brisbane, the specimen on a tag, the head on a slide.

4. ORMYRUS BICOLORIPES new species.

Female:—Length, 1.65 mm.

Like *australiensis* but the propodeum bears the two carinæ at the meson and only the coxæ and caudal femur are concolorous, the legs and scape reddish brown. Funicle joints a little shorter than the pedicel, all subequal and subquadrate. Tarsi white.

From one female caught April 2, 1914 on jungle edge.

Habitat: Gordonvale (Cairns), Queensland.*Type*: No. *Hy 3359*, Queensland Museum, Brisbane, the specimen on a tag.

Members of this group rarely shrivel except as regards the abdomen. The thoracic structure of the Callimominae, Monodontomerinae and Idarninae need careful comparison and it seems doubtful if Ashmead's characters are universal or even usual. His groupings, however, are acceptable.

Walker has described the following species: *Torymus daonus*, *osinius* and *vibidia*.